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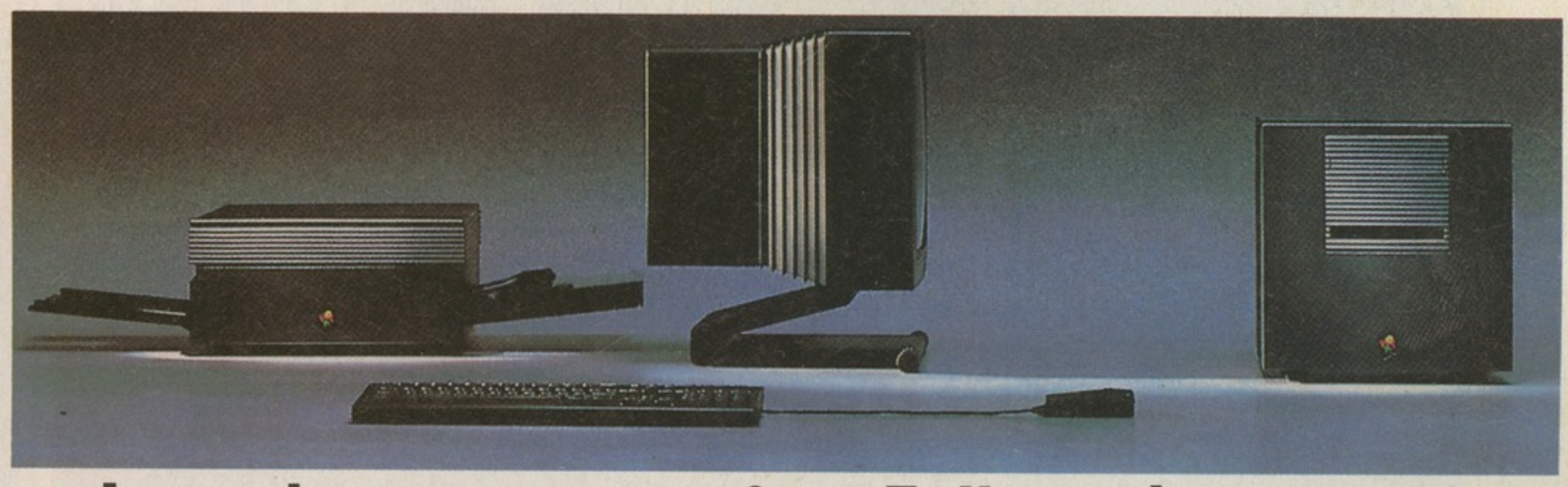
SEGA'S TINY HAND-HELD REVEALED

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'Micro Drive' tech specs leak out

BLACK TO THE FUTURE

The NeXT revolution in personal computing?



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Details emerge of colour wonder 'Micro Drive'

SEGA'S HAND-HELD SET FOR UK LAUNCH

Further details have emerged of Sega's hand-held games machine, plans for which were exclusively revealed in *Express* 35.

The machine – codenamed Micro Drive – will resemble the kidney-shaped controllers of the Megadrive, but will not incorporate that machine's 16-bit processor technology.

It will feature a 6cm colour screen in the middle with a thumb-controlled joypad and on/off and game selector switches.

Curiously, it is to be launched with the American and European markets in mind. It is based on the ageing technology of the original Sega console – Sega believes that sophisticated Japanese consumers would not tolerate such 'primitive' technology.

Production is to begin in the US within a few months and a UK launch will follow shortly afterwards. Prices have yet to be fixed although it is thought likely that the machine will be cheaper than Atari's colour Lynx, which costs £170.

Current Sega owners will be pleased to learn that the hand-held is 100 per cent compatible with the original console. It will use the tiny cards which Sega had previously considered scrapping.

No-one at UK distributor Virgin/ Mastertronic was available for comment, although product manager Philip Ley has already described such a machine as "a logical move". ■

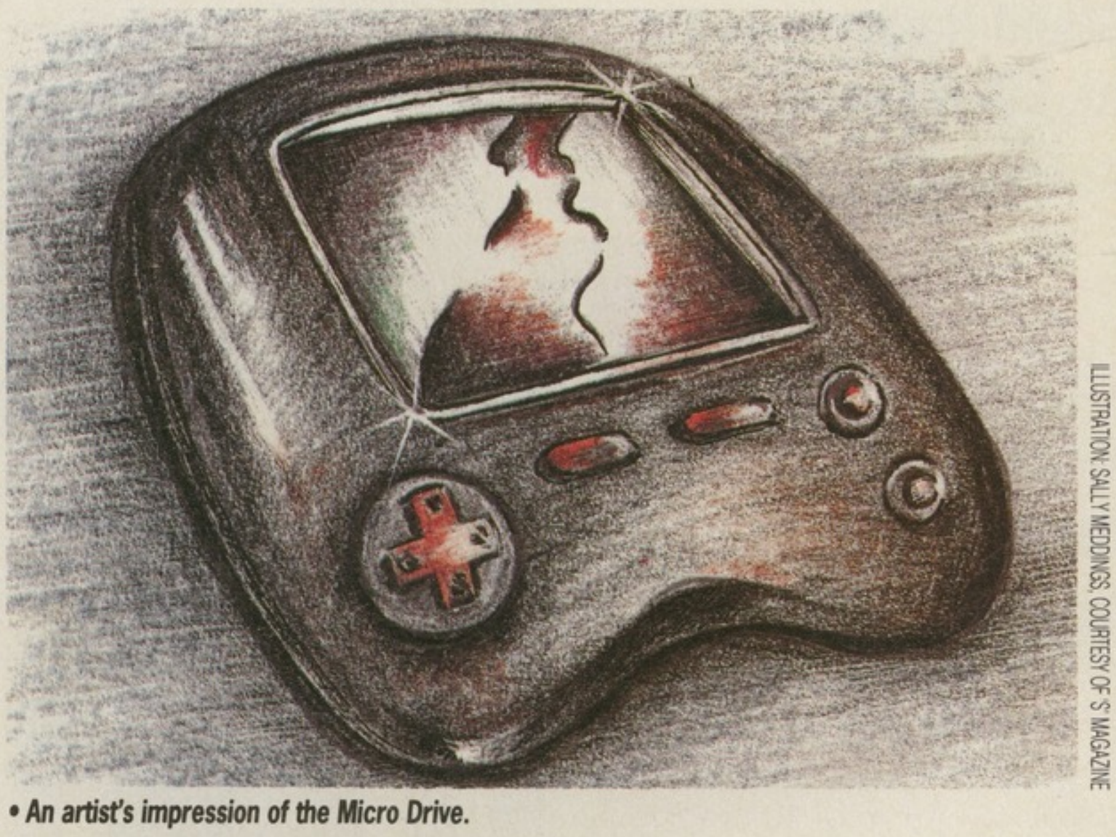


ILLUSTRATION: SALLY MEDDINGS, COURTESY OF 'S' MAGAZINE

• *An artist's impression of the Micro Drive.*



• **Chopper: *stealing the Pentagon's thunder?***

EA's Chopper game gets the jump on the US Air Force

Electronic Arts has released a helicopter simulation game based on the LHX attack chopper – which is yet to fly in real life.

While several contractors are still competing to build the real thing – described as the most flexible and deadly aircraft ever designed – Electronic Arts has somehow managed to design a computer simulation based around it.

LHX Attack Chopper will be released in March at £39.99 on both 5.25- and 3.5-inch disks in a package that supports all major PC boards, including MCGA and VGA, with the AdLib sound board for extra realism.

This is not the first time that a computer flight simulator has anticipated the aircraft it's based on. MicroProse developed *F-19 Stealth Fighter* before the real aircraft was even named. It was eventually called the F-117A and was hailed as the world's first radar-invisible aircraft. ■

Tune in with your stereo PC

If tuning into your favourite stereo radio programme is a nightmare with knobs on, why not let your computer do it?

An American company called Optronics Technology has developed DesktopStereo, a digital FM stereo receiver for IBM PCs and compatibles, that will do just that – and a lot more besides.

While it's being installed DesktopStereo automatically searches the FM band and assigns 10 pre-selections to the stations with the best reception. Through a pop-up control screen you can change channel, balance, volume, tone, bass, and treble. Signal strength is monitored on-screen and if it starts to fade the program will switch to mono for better reception.

A half-size circuit board plugs into a standard PC slot to connect aerial and headphones – or speakers. In America the system sells for $199 (£118). More information on 010 1 503 488 5040. ■

SAMDOS: out at last...

Disgruntled SAM Coupé owners waiting for their copy of DOS can breathe a sigh of relief.

The disk is finally ready to be posted out to impatient owners of the SAM disk drive. Miles Gordon Technology, which developed the computer, announced last week that the *drives* were available, but most people received their disk drives but not the operating system to go with it. Complaining letters



• The Abyss: *Imagina winner*

Sea-through graphics

Industrial Light and Magic, film director George Lucas' special effects company, won the supreme prize at Imagina – the European computer graphics festival held in Monte Carlo recently.

Excerpts from *Willow*, and *Indiana Jones and the Last Crusade* were also shown, but the greatest praise was reserved for the special effects in *The Abyss* – in which ILM managed to successfully design a creature that appeared to be made of sea water.

After animating a wire frame model of the creature on screen, another version was prepared with a solid surface, before it was made 'transparent'. This involved giving its surface a continuous ripple effect, together with carefully calculated 'reflections' off its surfaces.

Finally the faces of the actors were programmed in, so the creature could imitate the features of the characters in the film. ■

No solution for CD firm

Pergamon Compact Solution, the Mirror Group's CD-ROM specialist, has closed down – despite the success of its main project, the *Guinness Disk of Records*.

The group has decided to concentrate its software publishing on two areas in future. Commercial and professional business will be handled by BRS Software products. Entertainment and small business users will be served by Mirrorsoft .

Mirrorsoft has already outlined its intention to enter the CD fray. Two years ago Pergamon Compact Solution was probably the leading name in CD-ROM developments in the UK. ■

Amstrad insurance

Members of the influential Amstrad Professional Users' Group are being offered an insurance policy for their computers.

The scheme – called Restart – means owners of Amstrad PCs can extend their one-year warranties. Rates start at £163. The deal is being put together in conjunction with insurance firm Wisemans. ■

'Platform for the Nineties' unveiled in London

NeXT MACHINE: THE ALL-BLACK WINNER

After a 90-minute launch extravaganza at the London Palladium, the NeXT computer finally made it to the UK last week, some 18 months after its US debut.

The stylish black workstation, aimed at the networking Unix market, is the brainchild of Steve Jobs, the Apple co-founder sensationally sacked five years ago after helping build the company's fortunes to $2 billion through sales of the Apple II and Macintosh.

His new machine, warmly acclaimed as introducing several innovative features to personal computing, will be exclusively distributed through Businessland which is targeting sales at companies in *The Times* 1,000.

At a base-level system price of £5,745, this will come as no surprise, but the NeXT does represent tremendous value considering its specifications. Described as 'a mainframe on two chips', the NeXT is fitted with 8Mb of RAM and a high-resolution mono display powered by custom chips providing data transfer at a rate of 32Mb per second.

INNOVATIONS

Among the exciting innovations are an optional 256Mb rewriteable optical disk, a graphical user interface, NeXTstep, providing a front-end to the multi-tasking Unix operating system, and a 400DPI laser printer for only an additional £1,995.

At the packed launch, Jobs described the NeXT as "the best desktop platform in the world for the Nineties" and declared his belief in its potential.

"There have been three milestones so far. The Apple II revolutionised the industry, before being followed five years later by the IBM PC and two years after that by Apple's Macintosh. We're trying to make a fourth." With a $600 million company behind it, NeXT might start off slowly, but long-term success is relatively assured. Later this year, a 32-bit colour card will be released for the machine which will support Pixar's *RenderMan* package – arguably the computer graphics industry's leading edge in high-resolution modelling and animation.



• *NeXT: designed for computing for the Nineties.*

Although a limited amount of software is available for the NeXT, Adobe *Illustrator* and Aldus *PageMaker* are among the better-known titles in the later stages of conversion. Jobs' claim that, "every major third-party software developer in the US except Microsoft is writing for our computer", would seem to ensure the machine's success. A comparable Macintosh system, based on a 40Mb hard disk and including a laser printer costs around £4,000 more.

Although refusing to be drawn on the machine's sales performance in the US, Jobs declared the NeXT to be selling in groups of 10 to 50, with several large orders in the 100 to 500 unit range. ■

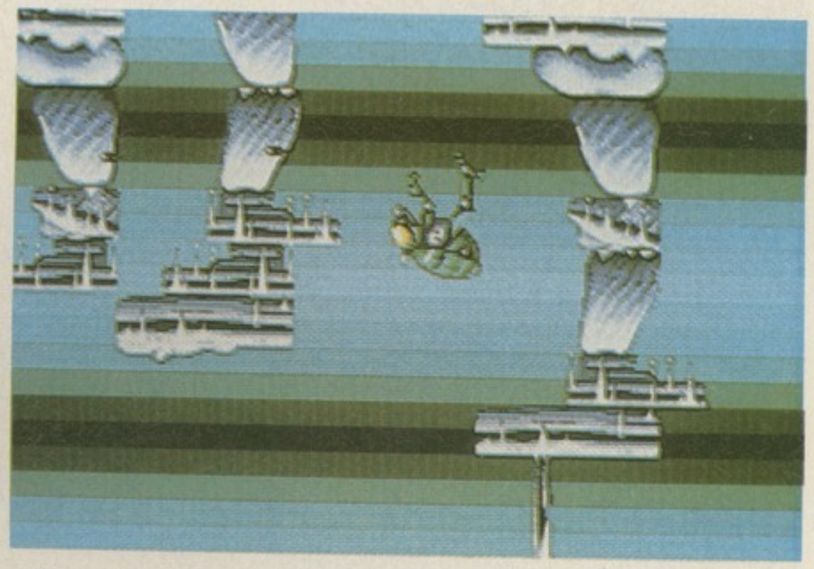
• For a full account of the 'platform for the Nineties' turn to the in-depth preview on page 54.

Venus fly affair traps the green gamers

On the surface, *Venus*, the latest game from Gremlin, is just another horizontally-scrolling platform shoot-'em-up. But, like a number of games released recently, it carries a 'Green' message

It's set in a future in which mankind, having killed off all the insects with pesticides, has had to create new ones to restore the ecological balance. Naturally some of the new breeds have turned nasty so it's time to send in 'the ultimate combatant' – a fly.

Strange, since flies are usually associated with maggots and other horrid things. Still, good fun if you've ever wondered what it's like to walk upside down. ■



• Venus: *more greenery.*

Experts say flight simulations are educational

COMPUTER GAMES ARE LEARNING TOOLS!

Flight simulators have always been at the top end of the games market, but now experts are recommending them as educational as well as enjoyable.

"Some of these products provide a strong educational basis," says David Oliver, editor of *Airforces Monthly* magazine. "They even give an excellent insight into the workload and complexities of flying something as sophisticated as the F16 fighter."

F16 Combat Pilot from Digital Integration, is the case in point. The founder of the company, Dave Marshall, commented: "We had over five people working on *F16 Combat Pilot* solidly for two years. We endeavoured to make the game as realistic as possible and received much praise from pilots including many former RAF pilots. We believe that the popularity of games such as *F16* will increase the number of people whose ambition it is to be a pilot."

In America *Falcon AT*, developed by Spectrum Holobyte, has been used by the US Air Force as an introduction to trainee pilots and is used to train them in 'pre-merge situational awareness'. In English that means assessing a combat situation before deciding how best to enter it.

Nintendo has long staged a public relations campaign attempting to prove that games are educational and help youngsters act in a positive manner – even if the games are based on violence.

Meanwhile, also in the USA, Broderbund Software Inc has released a new version of its World War II action game, *Wings of Fury* for IBM PCs and compatibles. In this game the player pilots an F6F Hellcat fighter/bomber through a series of missions in the Pacific. ■



• *Simulations are useful for training real pilots*

Dragon mania grips Japanese

The latest version of Japan's most popular game, *Dragon Quest IV*, sold 1.3 million Nintendo cartridges on the first day of its release in Japan.

Gamers queued up for hours waiting to get their hands on Japan's hottest new game. In one case four Nintendo owners sustained injuries when they were pushed through the window of a software store.

One shop, Bic Camera in Ikebukuto, Tokyo, knocked 30 per cent off the recommended price of 8,500 yen (£35), and attracted 10,000 eager gamesters who queued all night in the pouring rain. Luckily everyone got a copy eventually.

As demand outstripped supply, 60 proud, new owners were robbed by *Dragon Quest* junkies as they left different shops – there was even a reported case of blackmail.

Previous versions of the game have sold over seven million copies all told.

Enix, distributor of the game, expects to sell three million by this summer and has already asked Nintendo, which manufactures the software, for more supplies. ■

YOU BITE MY NECK...



Horrorsoft, the label which signed up US cult figure Elvira to launch *Personal Nightmare*, could be helping to launch the lady's own career on this side of the Atlantic. Its new game, called *Elvira, Mistress of the Dark*, stars the lady herself.

The game, due to be released in March, is aimed at ST, Amiga, PC and C64 owners and is a totally icon-driven, role-playing horror game requiring no keyboard input. It casts Elvira as the descendant of Queen Emelda, an evil sorceress trying to make a comeback from the grave, with the game player as Elvira's knight in slightly-tarnished armour.

Mike Woodroffe of Horrorsoft commented: "Elvira herself went through the game with us and changed it to fit her character – so it's certainly authentic.

"It didn't matter that she wasn't well known in the UK when we started, she was exactly right for the image we wanted to present. She's since presented *Heavy Metal Heaven* on BBC2 and is returning soon for some European TV work – by which time maybe the game will have helped to make her famous over here!

"She has a massive following in the States and a lot of people have assumed the game itself is American."

In America Elvira (real name Cassandra Peterson), has become one of the most outrageous characters on national television. She began as a Las Vegas showgirl before hitting upon the idea of Elvira. Not surprisingly her TV show, *Elvira's Movie Macabre* quickly became a hit and her fan club currently boasts 35,000 members. There could be a few British applicants soon. ■

Can we have our money back now, please?

If you buy a computer and later find that prices have dropped, it's just bad luck. Big business, it seems, is not like that...

Last October it was announced that Groupe Bull was buying Data Systems, the computer subsidiary of US giant Zenith Electronics, for up to $635m (£387m) – depending on net asset valuations. In December Bull paid $496m (£302.5m) with the rest to follow.

However it soon became apparent that Data Systems was struggling, and within weeks Zenith announced that it had become a loss maker. Bull promptly demanded a $49m (£30m) refund – plus interest!

Last week the *Financial Times* reported Zenith's chairman, Jerry Pearlman, as calling the current relationship between the two companies as: "a difference of opinion of significant magnitude" and "a major dispute" adding "neither we nor our auditors can predict the outcome of discussions, possible arbitration or other action." ■

Hip help

Surgeons may soon be using 3D computer graphics to provide patients with bespoke replacement hip joints.

The computer design system, which has been developed by Cornell University in America, allows surgeons to match artificial joints to individual patients using data from computerised tomographic scans.

The new system, already being used in five US hospitals, means the surgeon can design and test an artificial implant on a supercomputer, before having the joint manufactured to the correct specifications. ■

Catch a virus

S & S's *Anti-Virus Toolkit* 3.0 has just been launched with tools for detecting, preventing and removing several dozen known PC viruses – as well as tools for detecting future viruses by spotting the need of any virus to reproduce.

Costing £49 (or £84 including a year's upgrades), the kit comes with a manual detailing each known virus, information on how to ensure your system remains virus free and a friendly front end that integrates the easy-to-use tools.

Anti-Virus Toolkit works for networks and stand-alones and all versions of DOS with any PC-compatible computer. Contact S & S on 0494 791900. ■

On the other hand, US publisher slams violence

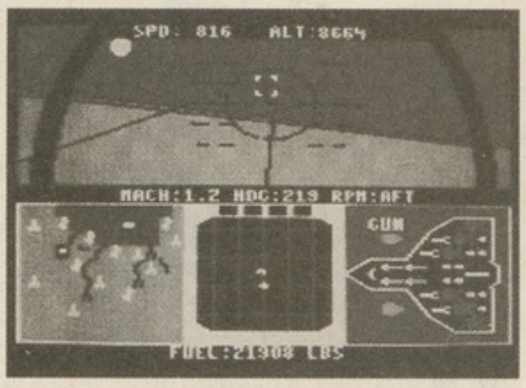
COMPUTER GAMES JUST GLORIFY WAR!

Flight simulations based on violence do not deserve to be rewarded as software products, because they help to perpetuate real war.

That's the view of a US software developer who has called upon the Software Publishers' Association not to reward any products which "glorify war and violence".

Greg Sanderson, boss of Breakthrough Productions, has written to all members of the influential SPA urging them not to vote for war games in the forthcoming SPA Excellence Awards. He has singled out titles such as *Operation Wolf*, *F16 Strike Eagle* and *Their Finest Hour*, among others.

Sanderson told *Express*: "My reason for doing this is the premise that by glorifying war you help to perpetuate it. It's wrong to promote a fascination about war and weaponry.



• Taking flight: are these games wrong?

"These simulations where you do things like strafe the Golden Gate are wrong – I just think 'gee guys, come on'.

"It's not a black and white thing. I know games like *Dungeons and Dragons* are fun, and you are in the realms of fantasy there. But if you've got someone blowing up a tank in a game with realistic sounds, that's just sick.

"Companies should have a sense of moral leadership – other than just taking out copyright lawsuits."

Sanderson's company is responsible for the acclaimed *Market Master* for the Macintosh – an aid for sales people. He says violent games should not necessarily be banned but should not be rewarded.

"I abhor violence and its glorification. I'm even against war toys such as GI Joe dolls [similar to our Action Man]."

Sanderson has sent hundreds of letters out to members of the SPA asking them not to reward any games based on violence – no matter how high the quality of the program.

A spokeswoman for the SPA said the body did not want to take an official stand on the matter. The SPA Awards will be announced on March 27. ■

PC-based robot helps disabled

An American company called Droid Systems has launched a robot which uses an IBM PC-AT as its brain.

Standing just over four feet high and rejoicing in the name of Droid PR1, the robot sells for $15,000. The PC-AT is based on a 286 processor, has 640K memory and a 20Mb hard disk as well as a floppy drive. There are five auxiliary computers which in turn control its movements, and it has sophisticated voice recognition software as well as responding to keyboard commands.

Droid PR1 can perform 40 different functions from light housework to stocking supermarket shelves and, if used in the home, will remember its way around after just one guided tour. It can't handle the stairs, though.

A spokesman for the company, Robert Daniel, commented: "It would be a great help to someone who is handicapped and that is an important part of our market. We would also expect the robot to appeal to schools and universities interested in research and development – and it could even be used to show people where specific items are stocked in the larger and more complicated supermarkets."

Droid PR1 runs for six hours on fully charged batteries and will even trundle off and plug itself in when it feels its charge is running low. ■

Listening to the sound of Psions

In a few months, people around Britain will be talking to their Psion portable computers.

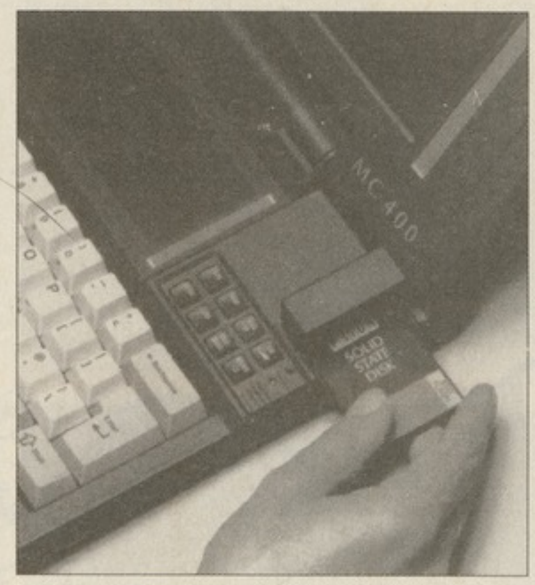
By the middle of the year, Psion should be releasing its voice processor which will allow users to store, edit and play back hours of speech in the memory of the recently-launched MC 400.

This is the first attempt to provide digital voice processing for the mass market, as the voice module, when available, will cost £99.

The Psion MC series machines already have provision made for voice input in the software. The processor fits inside the body of the 5lb computer, and with it installed users will be able to add voice messages to alarms and later to add voice comments to files.

It works in several different modes depending on the amount of compression required. At best, you get CD-quality sound, but it takes 64K of memory per second to store. At the other end of the quality spectrum, you can fit approximately three hours of speech in a megabyte of storage – and by the end of the year they expect to be able to fit the MC computers with 8Mb or more.

The idea behind the introduction of the voice processor is that the Psion will be eventually able to understand as well as record speech, and users will be able to do without a keyboard altogether. ■



• Psion: talk of the town

PostScript printing on the cheap

LaserGo Inc, an American company, has just launched a new version of its Postscript interpreter for the PC, *writes Jerry Glenwright.*

PostScript is a page description language which enables computers and printers to display and reproduce fonts in high resolution, making delicate DTP functions such as kerning and leading much easier to perform. However, PC owners without a PostScript-compatible printer do not have access to the superior features of the language.

GoScript 3.0 enables PC owners to print PostScript prepared files to ordinary dot-matrix and inkjet printers as well as high-resolution laser devices, and you can preview PostScript fonts on screen using either an EGA or VGA colour monitor.

The driver provides a menu-driven interface, smoothing operations even for hardened technophobes and comes complete with a variety of fonts. It costs $149 in America.

We'll bring you news of UK distribution when it happens. ■

Puzzling Arc

Who ran through the streets of Syracuse, naked, shouting "Eureka"? Trivia nuts and other brainy types will of course know that it was Archimedes.

By a somewhat creepy co-incidence the old Greek's modern namesake is now to play host to a mass of trivia – thanks to UK software house Domark. The firm is to launch that teaser *Trivial Pursuit* for Acorn's machine.

The computer version has some cute little extras including visual and audio puzzlers. In all there are 3,000 questions to get through. ■

Parallel processing on the PC

A British firm claims to be working on a system which can make an ordinary PC act as if it were working at speeds rivaling a Cray.

Taos Systems is working on the project, and has already developed a non-homogeneous, parallel-processing system offering enormous power gains at very low cost. The bad news is, it isn't compatible with MS-DOS... yet.

It started as a project to create better computer games systems. One of the partners in Taos Systems, Nik Spicer, told *Express*: "We have solved the problem of how to simply and easily program power systems of any size and any topology – even when the topology changes."

Taos doesn't have to have a specific chip to operate because it makes every chip in the network pretend to be a standard 32-bit computer called a virtual processor (VP), and then loads each VP with a small program designed to run Taos.

Operating this way would normally be too slow, but Taos has demonstrated that their routines run faster on an Inmos Transputer than the transputer will run under its own machine code.

Taos has also developed a new chip which it is even more excited about. It's still under wraps, but Spicer insisted: "We'll be introducing it later this year and it will be megabig – a PC will run half as fast as a Cray!" ■

SAM Across the Nation

The exciting new SAM Coupé computer is at a shop near you.

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Fax: 0792 791175
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IBM's huge RAM chip

IBM has successfully fabricated a 16-megabit chip on an existing semiconductor production line.

The announcement came last week at the International Solid State Circuits conference in San Francisco, which was attended by all the world's leading chip makers – most of whom turned up to boast of their four-megabit advances.

The IBM chip is a 16-megabit DRAM (dynamic random-access memory) which can store the equivalent of 800 pages of typewritten text and operates at a speed of 50 nanoseconds (billionths of a second). That means the chip's 16,777,216 bits could be read in just a twenty-fifth of a second.

The chip measures 0.3 inches by 0.75 inches and has circuit patterns 0.5 micrometres (millionths of a metre) wide – or 200 times thinner than the page you are reading right now. IBM expects it to reach the market within two years. ■ (Newsbytes)

Business wakes up to burglary

Britain's businesses are finally coming to realise that computer crime is costing money – and they want action.

According to new research, 80 per cent of computerised companies want new legislation to be introduced. And 58 per cent are ready to admit that their computer systems are open to abuse. A conservative estimate puts the cost of computer crime in UK businesses at £400 million a year.

The research – conducted by Gallup on behalf of the *Which Computer?* Show also found that 17 per cent of respondents knew they has already been hit by a hacker.

Viruses have moved on from the world of science fiction and into reality. Gallup found that 11 per cent of respondents were resigned to the fact that their systems contained at least one virus.

The argument that companies are ignorant about the risks appears to be ill-founded. Seventy five per cent of British businesses now have an active policy on computer security in relation to technical failure, with 72 per cent having a direct policy for the protection of data.

Organiser of *Which?* Hugh Keeble has set up a Computer Security Centre at this year's show which will focus on the technology available and the issues involved. The *Which Computer?* Show will take place from April 24 to 27 at the National Exhibition Centre in Birmingham. ■

Atari Lynx relieves hospital treatment tedium

GAMES IN BED FOR BORED PATIENTS

Bored hospital patients in the US are to be offered the chance to play computer games in their beds using an Atari Lynx hand-held machine.

Entrepreneur Andy Kluger has bought hundreds of the consoles to be hired out through 150 hospitals around the States. He will be offering them at a reasonable $7 a day with a selection of games also available. Kluger's company, Medical Entertainment Systems, also hires out books and tapes in hospitals. Kluger expects the scheme to generate revenues of $7 million this year.

He told on-line news agency Newsbytes that the consoles would be most popular among 18- to 35-year-old males. He will also be offering patients the chance to hire Atari Portfolio business machines.

Medical Entertainment Systems is Atari's exclusive distributor to the medical community in the US. Kluger said the Lynx is ideal because of its portability. Patients could use them through long treatments such as chemotherapy or kidney dialysis.



• Atari's Lynx colour hand-held: hospitalised.

MES's only problem lies in getting hold of machines. Shortages have meant the firm has only received 60 per cent of the order thus far.

An Atari UK spokesman offered: "We'd be delighted if an entrepreneur in

An outside bet

In a matter of weeks thousands of people will be clutching pink slips and shouting absurd names at television sets. It will be Grand National Day.

Elite has now brought out the Amiga version of its game based on what is widely regarded as the world's toughest race. *Grand National* includes familiar names such as Corbiere and West Tip. Players make bets and race the horses.

Grand National was out on the 8-bits some years ago and Elite has clearly decided not to enhance the charm of the original too much. Nevertheless it's good for a laugh and the kids will enjoy horsing around. It costs £19.99. ■

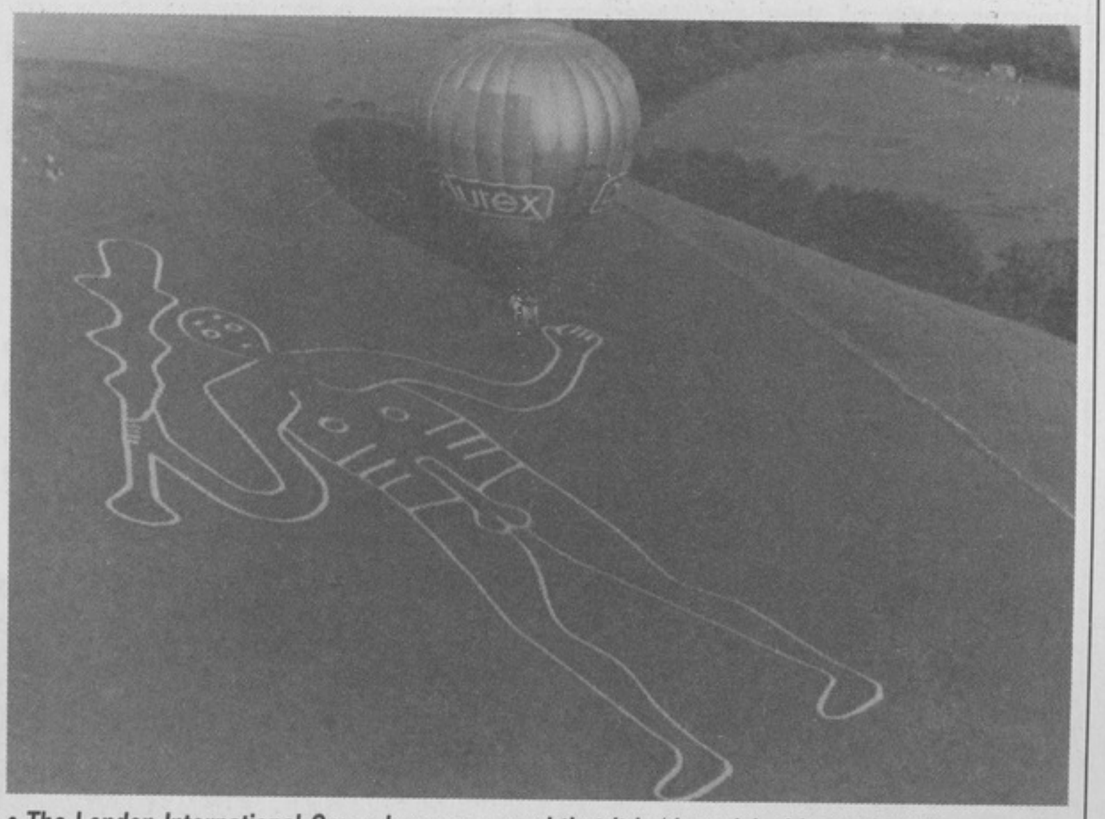


Compaq expands

PC manufacturer Compaq has announced that, by the end of the year, 70 per cent of all its machines sold outside the USA will be produced in the UK.

An injection of $30m (£17.5m) to expand the company's plant in Erskine, Renfrewshire, was announced last week by president of Compaq's non-American operations, Eckhard Pfeiffer.

Last year the plant produced 49 per cent of PC-compatible stocks sold outside North America. ■



• The London International Group has announced that it is 'downsizing' its world-wide computer systems from mainframe to mid-range computers – from IBM COPICS software on an IBM 4381 to Hoskyns Insight Data 3 manufacturing systems based on IBM AS/400s, to be exact. This is said to be because of the greater range of software available and better operating costs.

LIG are best known for manufacturing Durex, which is why they sent us this silly picture. ■

World Service buys a new computer

All that fuss and freedom fighting the Eastern Europeans are getting up to is causing the BBC's World Service a bit of a problem.

There's so much information to be dealt with that the Beeb's monitoring service is flooded. It's a good job then that Aunty has splashed out on a brand new computer which can put this to rights. The system is all part of a whopping £10 million scheme unveiled by the BBC last week. It can process up to 5,000 news items every day. ■

COMMENT

We've heard about the alleged dangers of violent games. But what about the well-respected war simulations, surely they can't corrupt youth?

Anyone possessing a modicum of sanity must feel a twinge of empathy with Mr Sanderson's beliefs, even if they appear misguided (News, page 5). There is, after all, something daft about the desire to sit in front of a computer screen pretending to control the fate of armies.

Snatches of pompous men with tons of tin soldiers spread over the drawing room floor flash in the mind. Taken in purely logical terms wargaming can easily be ridiculed.

To his credit Sanderson has taken a novel approach and, in his anti-wargames campaign, has ignored the sillier elements of the violence spectrum and concentrated on those which have hitherto gained nothing but respect. Respect from gamers, education authorities, the military and software publishers' bank managers.

HOARY CHESTNUT

Violence and the computer gamer is, as they say, a hoary old chestnut, which is best detailed to the dumper. But to accuse flight simulations of being an aid to perpetuating war and violence is so new as to be refreshing. We've already heard the debate over *International Assassin Simulator III* and its ilk too many times. No-one has yet accused our flight simulations of something so heinous. After all they are played by sensible people – not pimply psychopaths just out of the playground.

There may be an argument to suggest that games involving the mass murder of innocents might have an effect on young impressionable minds. Indeed, there is reams of research undertaken in American schools which suggest that youngsters who while away their leisure hours slaughtering things on television screens have a tendency to be anti-social.

Even then the anti-social behaviour comes to bad sportsmanship and the odd hair-pulling incident.

All that is simply too brittle to stretch to serious war sims. The best require a high degree of dexterity in controlling your own craft and staying in the game for a long period, rather than the ability to go crashing madly into anything that moves.

WORLD WAR

Apart from anything else, it's difficult to imagine your average ST owner initiating the next World War on the basis of a good score in *F19 Stealth Fighter*.

While violence and its glorification can leave a nasty taste in the mouth, only the sixth-form cynics sincerely believe there is any alternative. Popular entertainment demands nastiness. There can only be restrictions. Let's face it, flight and tank simulations are the least of our worries.

The German Government attempted to clamp down on war simulations a couple of years ago. Understandably, they are especially sensitive to anything which may be seen to glorify war. There was no clampdown on *Barbarian* type affairs – only games such as *Silent Service* (a wartime submarine simulation).

Those restrictions came to little because of public demand. Many people want to how it felt to captain a sub or fly a Spitfire over Kent in 1940.

Here is a good opportunity to make one point. That is, the attempts by certain publishers to create stereotypes of what they perceive to be the people 'we' have to fight against.

There's no need to go off on some bonkers tirade about equal opportunities for kamikaze pilots in computer games, but isn't it refreshing when you get the chance to play the other side? ■

FROM The ARCHIVE

ONE YEAR AGO

'The Case of the Whingeing Pommes' got under way as the Beatles' Apple Corps filed suit in the London High Court against Apple Computers, seeking a world-wide ban on the use of the name Apple on equipment used for synthesising music.

The action was said to have been instigated by George Harrison who, ironically, had become something of an expert in copyright law after being accused of plagiarism in the 1970s. A riff in *My Sweet Lord* was deemed to have been stolen from an early Chiffons' hit, *He's So Fine*.

The case still drags on and there seems to be no end to the long and winding road...

Poqet Computer International, a new player in the portable PC market, set up business in its world-wide headquarters in Weybridge, Surrey, having been formed two months earlier in Sunnyvale, California.

Rumours of a family of pocket-sized MS-DOS PCs were already rife, but Tom Cairns, the company's new chairman and ex-managing director of Zenith, said: "We are keeping details of the machine close to our chests until the launch."

Asked to comment on his appointment he added: "...it is a rare opportunity to be a founder member of one of the most exciting developments I've seen"

Meanwhile Zenith itself announced its first annual profit since 1984 and Clive Taylor, vice president for Western Europe, boldly insisted this was a permanent turn around and the latest results were not just a bright blip that would be wiped out next year. "The trend is there," he added.

Alas! The latest figures are a disaster and even the sell-off of the Data Systems part of Zenith's business empire to Groupe Bull has come to grief – see news, page 4.

Apple US formally announced the launch later that year of the most prestigious portable to date – a laptop Macintosh. No other information was forthcoming but financial analysts predicted that it would sell for around $6,000. Not a bad guess as it happened.

The launch had been delayed because of 'problems with the laptop's screen display'. Problems that were clearly solved.

TWO YEARS AGO

Cascade proudly announced that it had won the worldwide licence to market an official Royal Air Force game, provisionally entitled *Fighter Pilot – The RAF Simulation*, which actually set out to simulate joining the RAF and training, as well as flying a number of aircraft. All of which sounded great, but as far as we can make out, the game never got of the ground.

Cascade has since changed its name to Artronic.

Mandarin's marketing manager, Chris Payne, reckoned that ST games were only "pretty to look at" and "don't play well".

"Upgraders from 8-bit machines are disappointed by the ST," he continued. "The market is still very immature and software houses aren't as critical as they should be. It's a great shame. People are better off with a Spectrum or C64 at the moment."

Payne has since become Mandarin's managing director.

TEN YEARS AGO

The first signs of Japanese supremacy over the Americans in the field of microelectronics appeared at the Solid State Circuits Conference in San Francisco.

At a time when 64K memory chips were only just starting to appear commercially, NEC-Toshiba and NTT stunned the world by unveiling the first 256K chips. Now IBM has announced a chip 64 times the size.

Sources: *New Computer Express, Computer Weekly, Computer Trade Weekly, MicroScope, PC Dealer, Computer Talk, Datalink.*

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LET'S SPLIT

The fax machine was the quiet revolution of the late 1980s. Three or four years ago, anyone who talked of transmitting data across a telephone line was a comms-freak waiting hours to get files across at 300 baud.

Then quite suddenly the fax machine became the staple medium for inter-office communications and junk-fax became yet another new buzzword. Incidentally, try sending a long and boring fax back to any perpetrator of junk – 20 times. It causes little hassle to you but wastes a goodly amount of the receiving fax's thermal paper.

If you're thinking about installing a fax, but can't afford or don't want an extra phone line, consider the Fax-Line line splitter from Watford Electronics. This compact device connects to a standard BT phone socket and lets you connect a fax machine and an audio handset into sockets in its end.

'Ah ha!' you say 'but what happens when auntie Gertrude calls and gets an earful of carrier tone?' This might actually be quite a good way of discouraging the old bat, but the Fax-Line is designed to encourage aunties and other callers.

The Fax-Line does this by using a digitised recording which tells the caller to hold on for connection to your handset. If the caller is a fax machine, it doesn't bother with the message, but connects it straight to your fax instead. Jolly clever, don't you think?

If you want to hear the system in action, call WE on 0923 222221 – reproduction on the Fax-Line is much better than the answering machine it connects you to. If, after hearing what it can do, you want to order one, call WE on 0923 37774 or fax the good people on 01-950 8989.

ONE AT A TIME

Multi-tasking is not needed on a single-user machine. Indeed, there are few occasions when you ever need your PC to do more than one thing at a time, because there's only one of you and you only have one set of hands and eyes (if you have more, please write it and tell me about them). So runs the line I've been putting about for a veritable string of many months now.

It appears that at least one company feels the same. SoftLogic Solutions Inc has been marketing *Software Carousel* for some while now, but it has only recently come to my attention.

Software Carousel enables you to switch between applications, but holds any you are not currently using in stasis. When you switch back to them, they're in exactly the same state they were when you left. It's a bit like switching between applications in *Pipedream* on a Z88.

The great advantage of this technique is that the coding of *Software Carousel* is a *lot* simpler than for a multi-tasker like Windows or DesqView. The whole program is under 50K long and handles text and graphics programs with ease – though I have to admit to some screen breakup on GEM.

The other good thing about the program is that it can use expanded and extended memory and supplement it with virtual memory – a section of your hard disk partitioned off to look like more RAM. You can tailor the combination of these three resources to dictate what *Software Carousel* uses.

Once installed, the program sets up each application you've specified in its own area of memory. You can switch between them, commendably quickly, by pressing [Alt]+[Shift]. The closest analogy for the way it works is that it makes any program into a pop-up.

The other comforting feature of *Software Carousel* is that it costs just £68.95 from Software Paradise. Phone 0222 862209 for more.

Simon Williams

NERD WORDS



If you use your word processor for the odd bit of poesy you'll no doubt be interested in *NERD. Newman's Electronic Rhyming Dictionary* is an American pop-up program which lets you sweep around different rhyme groups or enter the last word from a line of verse for a suitable set of rhymes.

Rather a good idea/it's clear/and not too dear/at £29.99. That last line needs a bit of work. Contact NA Keylock for further information. You'll find him on 0278 691045.

SMARTEN UP

John Treen of Leamington wrote asking about a system for setting up separate environments which I described in this column some while ago. It is actually the most useful bit of batch file coding I've ever come across, and it has many side benefits – so it's worth running through again.

The basic principle is that you have lots of `CONFIG.SYS` and `AUTOEXEC.BAT` files, and that you use a selected pair of them to reconfigure the environment of your PC for a particular application. For instance, I have separate sets with all the necessary setting for Windows, GEM, DesqView, word processing and a 'clean' machine.

The `CONFIG` and `AUTOEXEC` files are saved in two separate directories called BATCHES and DEVICES and are given names to show the environment they refer to – `CLEAN.BAT` and `CLEAN.SYS` for example – and are called by specially written batch files with names like `WINDOWS.BAT`, `DV.BAT` and `CLEAN.BAT`. The `CLEAN.BAT` file, as an example, looks like this:

```
echo off
cls
if "%1"=="RUN" goto cleanrun
echo SET UP FOR CLEAN MACHINE
echo About to reset the machine and remove all TSRs.
echo Check if you have any unsaved files before proceeding.
echo.
echo OK to continue? (y/n)
WOULD
if not errorlevel 1 goto end
copy C:\DEVICES\CLEAN.SYS C:\CONFIG.SYS
echo C:\BATCHES\CLEAN RUN > C:\AUTOEXEC.BAT
COLDBOOT
:cleanrun
prompt $p$g
path C:\DOS;C:\UTILS;C;\BATCHES;C:\PK;C:\;D:\;E:\;
KEYBUK
MOUSE
:end
```

This short batch file is a little convoluted, but it does reduce the total number of files needed to get the system running. It first displays a warning to give the user the chance to save any work which would be obliterated by the reset.

WOULD is a short batch utility from *PC Plus*'s SuperDisk 32 which returns an errorlevel for Y or N answers. This and `COLDBOOT` – which, by the way, caused a minor earth tremor when it was mistaken for the spore of a virus on SuperDisk 41 – are also available under other names in the public domain.

The batch file then copies `CLEAN.SYS` to `CONFIG.SYS` and overwrites the contents of the current `AUTOEXEC.BAT` file with the single line `C:\BATCHES\CLEAN RUN`. This forces the machine to call the batch file again once it has rebooted (using the *Coldboot* utility). The RUN parameter, however, forces it to skip the warning and reset section and run the commands after the `:cleanrun` label instead.

As well as being ideal for setting up environments, this scheme of doing things is very handy if you're testing new software. More and more packages 'self-install' by tromping all over your `CONFIG` and `AUTOEXEC` files. Using this system, you can recreate your standard setup by typing something as simple as `NORMAL`.

PC GAME of the WEEK

RISK

Leisure Genius • £24.99



• Risk: *a top-notch conversion.*

Risk is one of those games that you can bring out on a rainy Sunday afternoon and play with the whole family in front of the fire. It may not pose the intellectual challenge of chess or bridge, but it will certainly keep most people absorbed for a few hours. Whether it really needs to be translated to the computer screen is another matter.

Thankfully in *Risk*, the computer edition, Leisure Genius has produced a worthy successor to *Diplomacy*, a rather more demanding game of political intrigue and world conquest that was converted to the PC a few years ago.

On an EGA or Hercules machine, for example, *Risk* makes excellent use of the display with a very attractive map, drawn in the high resolution 16-colour 640 by 350 mode on EGA. On a CGA or Tandy machine the screen becomes a window on a larger, scrolling map.

It can be played with keyboard or joystick although it is best with the mouse, particularly as play is controlled by a well-designed system of pull-down menus and dialogue boxes. Unfortunately not all mice work, though.

***Risk* allows up to six players, any of which can be controlled by the computer playing at any of three proficiency levels. It supports either US or UK rules with options for full or short games, and the two player game even provides a neutral computer-controlled player to spice things up.**

As a computer version of *Risk*, this new release would be hard to beat. Indeed, this conversion is nothing short of a must.

Matt Nicholson

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8088; 4.77/7.15/9.54mhz; 640K ram; 1 slot; 84 key compact keyboard. Includes: serial/parallel ports; clock; 1 or 2 720K drives; MS-DOS 4.1, GW BASIC & manuals.

MINI-PC		MONO £	VGA £
MINI-PC	SD	441	554
MINI-PC	HD20	479	593

80286; 8/12mhz; 1mb ram (exp. to 8mb); 7 slots; enhanced keyboard. Includes: 2 serial/2 parallel ports; clock; 1 x 1.2mb drives; hard disk controller; MOUSE, WINDOWS, MS-DOS 4.01, GW BASIC & manuals.

		MONO £	VGA £
AT 286-12	SD	779	876
AT 286-12	HD40	1071	1168

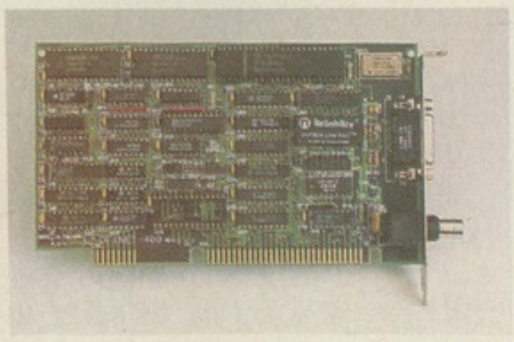
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MONO	HYUNDAI	HMM 1201 FST	12"	70
MONO	HYUNDAI	HMM 1401	14"	92
MONO	PHILIPS	BM 7513	12"	73
MONO	PHILIPS	BM 7913 FST	12"	80
MONO	PHILIPS	BM 7713 FST	14"	96
MONO	SAMSUNG	MA 2671/3/5 FST	12"	81
MONO	SAMSUNG	MA 4671/3/5 FST	14"	88
MONO	AKHTER	MONO 12	12"	65
MONO	AKHTER	MONO 14 FST	14"	79
MONO VGA	PHILIPS	BM 7749 FST	12" P/WHITE	107
MONO VGA	AKHTER	VGA 14M FST	14" P/WHITE	99
MONO VGA	SAMSUNG	ML 2611	12" P/WHITE	81
MONO VGA	SAMSUNG	ML 4571	14" P/WHITE	95
MONO A4	SAMSUNG	MP 5671 (inc card & drivers)		634
CGA	PHILIPS	CM 8833	14"	209
EGA	HYUNDAI	HCM 1420	14"	256
EGA	PHILIPS	CM 9073	14"	289
EGA	SAMSUNG	CM 4551	14"	281
VGA	HYUNDAI	HDM 401 FST	14"	253
VGA	PHILIPS	3CM 9809	14"	372
VGA	SAMSUNG	CJ 4581	14"	281
VGA	AKHTER	VGA 14	14"	273
MULTISYNC	SAMSUNG	CT 4581	14"	340
MULTISYNC	AKHTER	ECM 9600	14"	360
	MDA/CGA CARD with PRINTER PORT			45
	MDA/CGA/EGA CARD			99
	VGA CARD			148



			PRICE £
CITIZEN	OSDD 05A-WD	3.5" 720K in 5.25" KIT	59
CITIZEN	OSDA 39C-WD	3.5" 1.44mb in 5.25" KIT	69
CITIZEN	OSDD 76A-WD	3.5" 720K AMSTRAD KIT	59
AKHTER	AMS 360A	5.25" AMSTRAD 2000 360K External	79
YE DATA	360 INTERNAL	5.25" 360K	59
TEAC	1.2 INTERNAL	5.25" 1.2mb	69
JAVELIN	HC20	20mb XT HARD CARD, 62ms	185
JAVELIN	HC30	30mb XT HARD CARD, 62ms	199
JAVELIN	HC40	40mb AT HARD CARD, 25ms SPECIAL	399
JAVELIN	HC100	100mb AT HARD CARD, 19ms SPECIAL	899
KYOCERA	KC 20B(s)	20mb XT/AT DRIVE, 62ms, 3.5"	138
KYOCERA	KC 30B(s)	30mb XT/AT DRIVE, 62ms, 3.5"	158
KYOCERA	FRAME	5.25" kit for 3.5" hard drives	5
XT 20	HD CONTROLLER	XT MFM	44
XT 30	HD CONTROLLER	XT RLL	44
AT 20	FD/HD CONTROLLER	AT MFM	110
AT 30	FD/HD CONTROLLER	AT RLL	114
AKHTER	MDM 2400 PC CARD MODEM	V21/V23, V22, V22bis (inc software)	135

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£135 INCLUDING SOFTWARE

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DF-NET-300	ETHERNET CARD Novell/Ms-NET compatible	143
XT 88-8mhz	MOTHERBOARD nil RAM	69
AT 286-16mhz	MOTHERBOARD nil RAM	199
AT 386-16mhz	MOTHERBOARD nil RAM	549
PC/XT CASE	FULL SIZE XT CASE	55
PC/AT CASE	BABY SIZE AT CASE	73
XT-PSU	150W (full approvals)	78
KEYBOARD 84	84 KEY UK LAYOUT XT	41
KEYBOARD 102	102 KEY UK LAYOUT XT/AT	52
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2mb EMS RAM CARD – specify XT or AT		93
DMS200 SERIAL MOUSE – Includes DR HALO III software		38
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AT I/O CARD (RS232/printer)		54
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COMMON MAN FANFARE

This week, for no very good reason, the *Express* ST column is dedicated totally to those individuals and small concerns attempting to broaden the ST's appeal, either by offering new software, publishing new programs, or starting new clubs and PD compilations.

These people begin, almost always, as enthusiastic amateurs motivated not by a desire to make a quick buck but through a desire to share what they've discovered. Good luck to 'em all!

PUN OF THE WEEK

It is my painful duty to inform readers that Graham Hutcheon has published a double-entry accounting package for the ST that he has chosen, completely of his own free will one presumes, to call *Double Sentry*.

Quite. Excruciating wordplay notwithstanding, *Double Sentry* is a relatively user-friendly and well thought out accounts program that deserves success. Not least because Graham had the good sense to release a truncated demonstration version into the public domain last year to gauge user response. From that feedback and from those who bought an earlier version Graham has been able to create a much improved accounting package.

The result runs in either high or medium resolution and offers up to 9,999 sales accounts, 9,999 purchase accounts and 9,999 nominal accounts. Full reports available include nominal ledgers, purchase and sales ledgers, aged debtors/creditors (aged, no doubt, from having to use an accounts program), VAT return, bank and VAT reconciliation, day books, trial balance, profit and loss and balance sheet.

Other mouthwatering goodies include automatic invoice numbering, automatic VAT calculation and built-in data back-up facility. Blimey!

Double Sentry costs £28.25 from Graham Hutcheon, 45 Connaught St, London W2 2BB, phone 01-402 2836.

ST CLUBS TOGETHER

All the best to Mark Stevens, who is hoping to to set up, as a non-profit making venture, a monthly disk-based magazine based around the cream of public domain software. Mark would like to include a news section that tries to praise companies making an effort to support the user of the ST and come down heavily on those that don't (the 'Watchdog' section); a letters section; and above all, of course, a collection of all that's best from the current PD scene.

I don't think Mark will have any problem avoiding making a profit, at £1.25 for a one double-sided disk and £2 for two single-sided disks. If you'd like to get in touch, write to 5 Balmoral Rd, Moorlands, Lancaster, Lancs LA1 3BT.

Graham Smith of Awesome Demos writes to inform me that he's had to introduce charges, which to be honest doesn't greatly surprise me. Still, at 50p per disk (user supplies) and £1.20 (Awesome Demos supplies), I don't think there's much danger of Graham having to pay supertax.

Get your Awesome Demos catalogue from Graham Smith, 3 Mason Rd, Seaford, East Sussex BN25 3EE.

Penarth public domain library Brontobyte is doing well, you'll be pleased to hear – though once again I doubt that Owen Reynolds will be spending much time abroad avoiding excessive tax demands, with charges of just 70p (you supply disk) or £1.20 (Brontobyte supplies) for a double-sided offering of all that's best in public domain.

Incidentally, Brontobyte is among those PD libraries offering disks especially for high resolution monitors. So business users needn't feel left out anymore!

Write now for a free Brontobyte PD catalogue from: 3 Corbett Rd, Penarth, South Glamorgan CF6 1QX.

John and Susan Pass, who run the excellent Demo Club, have been spending their spare time recently running through their collection sorting out the good (STE compatible) from the bad and the ugly (hates STEs). The result is something like a 20 per cent failure rate, but at least STE owners will now know what to avoid. And that still leaves plenty of exciting demos for you to enjoy.

By the way, John tells me he's had no trouble at all with *First Word Plus*, which contradicts puzzling earlier reports. John is also well-chuffed indeed with the STE's excellent sound, both sampled and chip. And he points out that the video signal is much sharper and steadier with a colour display – something I hadn't noticed until I looked. He's quite right, too.

The Demo Club – 23 Alma Place, Spilsby, Lincs PE23 5LB – charges £1.50 (you supply) or £2.50 (Demo Club supplies) per disk.

PHOENIX RISING

The first release from new educational specialists Phoenix Software (named, since you ask, after proprietor Andrew Phoenix, if you can believe that) is *Teach Me to Read*, a £9.99 program designed to be "as easy to use as the ST allows". Get yours now from Phoenix Software, 4 New Forest View, Cowbridge, South Glamorgan CF7 7ET.

CONFESSIONAL

Nostalgia may not be what it used to be, but thank God *Space Invaders* still is. No doubt I'm supposed to feel all ashamed and that, but I know for a fact that I am not the only person who's found Digita's ridiculously old-fashioned classic *Invaders* the most absurdly addictive game I've played in years.

Her indoors wouldn't let me back in once she'd seen it, and I caught two sophisticates – who normally spend their time slagging off anything less complicated than *Interphase* or *Tower of Babel* – actually playing for money! In fact, this just reinforces what *Tetris* proved: it doesn't have to be a programming breakthrough to be a killer.

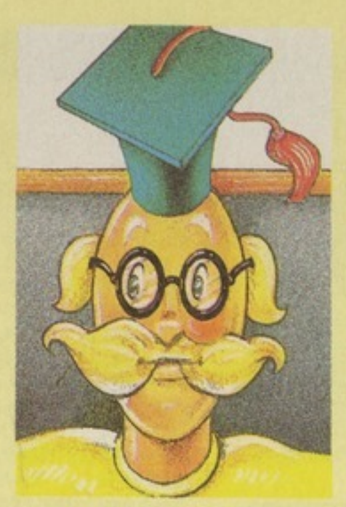
If you share this addiction, Digita's memory-jerker costs £14.99 and you can get a copy by phoning 0395 45059.

Steve Carey

TALKING EDUCATION HERE

First release on the ST from The Educational Software Club is *Mathtalk*, an American program from FirstByte that claims to be "a revolutionary mathematics learning tool with a built-in revolutionary [there's that word again!] speech technology to let Professor Matt A. Matics *(Geddit?– Ed)* talk to your child."

Sounds, as Marvin the paranoid android was wont to put it, awful. But in fact it's a fairly well put together group of five learning modules and testing games that should keep youngsters occupied and perhaps even



• Mathtalk: *new package from ESC*

learning for some time. For more detais, contact The Educational Software Club, 32A Southchurch Rd, Southend-on-Sea, Essex SS1 2ND, or phone 0702 600557.

Incidentally, the current issue of *ST Format* (available all good newsagents - if they don't stock it they're no good) considers several other mathematics programs for the ST.

Also, I'd be interested to hear from parents who've discovered good educational software, since in my experience good material is rarer than a Michael Barrymore joke. Write to Steve Carey, ST Centre, *New Computer Express*, 30 Monmouth St, Bath BA2 2AP.

PLAYING TIP

ELIMINATOR

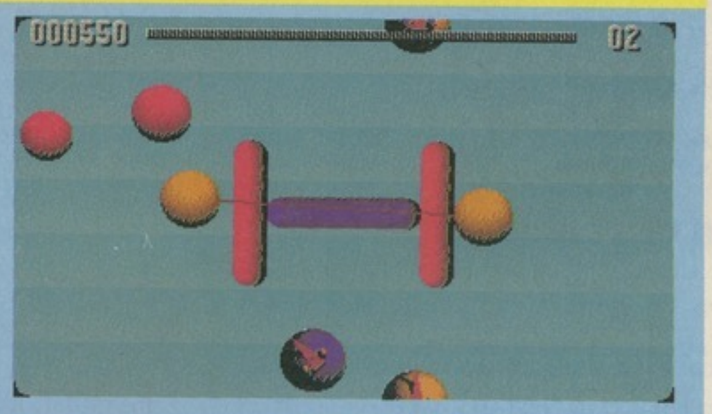
If you're an *Eliminator* fan, how about trying some of these tips? Press the Help key during the game and then type in the following passwords to progress onto different levels.

AMEOBA	BLOOOP	CHEEKI
DOINOK	ENIGMA	FLIPME
GEEGEE	HANDEL	JAMMIN
KIKONG	LAPDOG	

ST GAME of the WEEK

E-MOTION

US GOLD • £19.95



US Gold is making determined efforts to slow down on its conversion and licence front and build up a strong line-up of original games instead. The first of these to be whipped out of the hat is *E-Motion*, a game out of the Assembly Line stable.

Cast a roving eye over the game, and your first thought is going to be that it looks incredibly complex. *E-Motion* is played with multi-coloured balls. When two dissimilarly-coloured balls are knocked together, a third ball of a third colour is generated.

Originally, the third ball starts off as a pod which gives you bonus energy if you can pick it up fast enough. However if you wait too long, it grows into a larger ball. Since the objective is to clear each level of all the balls, this is the last thing you need. To obliterate the balls, you need to knock two similarly coloured balls together at which point they explode and disappear, leaving you to tackle the remainder.

To move the balls, you control a small ball with an arrow inside it to indicate your direction. Using a typical *Oids*-style movement, you use the keyboard or joystick to rotate the arrow and hit the thrust button to move forward. The real test of skill in *E-Motion* is to control this ball quickly and carefully. If you charge around the screen like a demented idiot, you can knock different coloured balls together and make the level almost impossible to complete.

The key to success is to watch your energy levels. Extra energy is picked up by runnning over a new ball before it has time to swell into a larger ball. If you forget about the larger balls they become unstable, wobble and then explode. This action wipes out massive amounts of your energy, so you have to stay on top of the game.

According to the programming team, it is possible to play *E-Motion* from start to finish in just 17 minutes. But you'll be playing it for much longer than that, getting used to the complications of the different levels and mastering the odd bonus level.

The elements of originality, colourful graphics and playability fuse to make *E-Motion* one of US Gold's most exciting games to date. If you're not looking for a game with any depth, yet you are looking for it to be addictive, don't look any further than *E-Motion*.

Mark Higham

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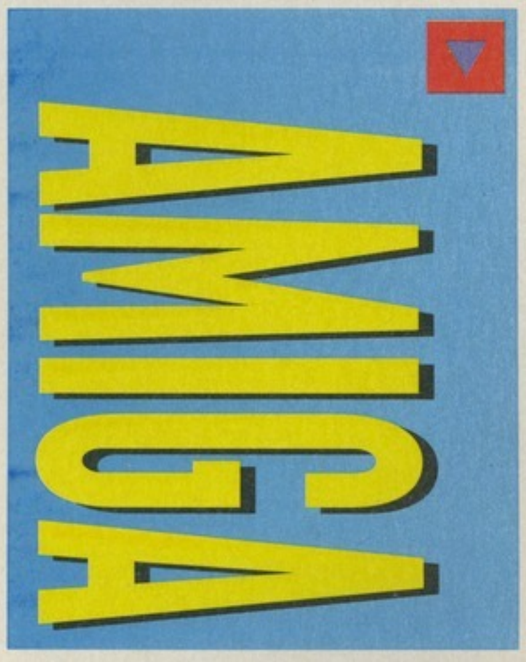
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ALL ADS UP?

If you get a chance, check out the advert from Commodore US in several of the leading American Amiga magazines. The ads consist of seven continuous colour pages, describing the Amiga's use by artists, teachers, musicians, geologists, and so on.

The overall image that the ads are attempting to portray is that the Amiga is a computer for the creative mind, not just a number crunching engine. Now if only Commodore UK would do likewise!

OPERATING BETTER?

Oh dear, Atari certainly does seem to be running into some stick over the release of the new 'Amiga beating' ST – the STE. As you will probably already be aware if you keep your eyes on the *Express* news pages, software title after software title has died a terrible death at the hands of Atari's new baby.

Even non games software such as *First Word Plus* has suffered as a result of Atari trying to up the ST standard.

This mess is, unfortunately, almost inevitable with machines as complex as the Amiga and ST. If computer manufacturers wish to keep their devices up to date, changes in both the hardware and operating system are neccessary.

To avoid problems, manufacturers lay down guidelines for software developers that document the 'legal' way of programming the machine. However, as always, many programmers feel held back by such guidelines and in order to create their 'magic', they carry out what could be best described as 'dirty' programming. Although the resultant program might work on the most current release of a particular machine, it is in no way guaranteed to work on any future releases of the same machine.

While Atari in particular has twice suffered from this (once with the release of TOS 1.09, and just recently with the STE and its TOS 1.6), the Amiga has also fallen foul on a number of occasions. With the original release of both 1.2 and 1.3 of the Amiga OS, several software developers were faced with the task of updating their software to make it work.

The Amiga's high level of expandability can also cause a lot of problems for programmers. Although a particular item of software may work on a 512K Amiga 500, it can often fall flat on its face when run on an Amiga equipped with such high-end boards as 68030 processor cards, 32-bit RAM and so on.

Once again, Commodore lays down guidelines to allow developers to produce software that will function without problems on any machine configuration.

Furthermore, the biggest test for Amiga software is yet to come. With the release of 1.4 of the Amiga operating system, you can bet that software will fall over in droves – 1.4 is such a radical change that if software does not follow the guidelines to the letter, it is almost certain to die a terrible death.

Who is to blame for such problems? The machine manufacturers? Most certainly not, as no company would deliberately produce a machine that is incompatible with existing machines, without good reason. If a manufacturer provides guidelines to avoid incompatibility problems, then only the programmers are to blame when software suddenly stops working.

The old argument about it often being neccessary to break a few rules to get that bit more out of the machine, does not really hold when you consider that there are many other programmers producing state-of-the-art products without breaking rules. The lesson for today is simple – stick to standards.

MEDIA SHOW

Multimedia is rapidly becoming one of the big growth areas within the computer industry. Companies such as IBM, Apple, Philips and even Commodore have started pushing their machines as the ideal base for any multimedia system. To further enhance the Amiga's position within this new market, Commodore US has announced the impending release of its very own multimedia toolkit.

The new system is a complete multimedia authoring environment that links all the elements of multimedia under the control of a completely icon-driven user interface. The system utilizes the Amiga's multi-tasking capabilities and advanced A-Rexx message passing to allow multimedia applications to be built up. Further, all this power is constructed upon a relational database that is compatible with the popular PC *dBASE* database management system.

Actually creating multimedia applications should be simplicity itself. By drawing an icon-based flowchart and then setting up each element within the flowchart using a powerful BASIC-like programming language – like *UltraCard*'s UltraTalk for example – one can design an application.

These multimedia applications will then be automatically turned into a stand-alone form, thereby allowing the creation of multimedia applications tailored to the needs of individual users. US sources close to Commodore view the system as a major advancement in multimedia which will almost certainly help to put the Amiga on the multimedia map.

For a complete run down of the multimedia scene on the Amiga, check out the next issue of *Amiga Format*, which should be available at a newsagent near you on the first Thursday of March.

Jason Holborn

BOARD WITH THE AMIGA

All you modem users: where can you get all the latest Amiga news, reviews, gossip and a goodly supply of free software? Well, apart from the elsewhere-mentioned *Amiga Format*, there's a wealth of bulletin boards out there that provide coverage for our beloved machine.

Below is a list of some of the better boards that provide some form of Amiga coverage.

Name	Number	Speeds
IDPEX	0903 700771	V21/22/22b/23
01 FOR AMIGA	01-377 1358	V21/22/22b/23
MABBS	021-444 8972	V21/22/22b/23
STABBS	0793 855176	V21/22/23
AMIGA BOARD	0268 510495	V21/22/22b

AN EDUCATION IN ITSELF

The Educational Software Club has been set up to serve the increasing demand for quality educational software for the Amiga.

The Club stocks a full range of educational titles, covering pre-school to adult learning. Among the list of titles are *My-Paint*, *Kid Talk* and the popular *Fun School* range of programs.

Although the club runs a membership scheme, members and non-members alike can take advantage of all offerings. Paying members recieve a regular educational software bulletin as well as being able to purchase software at special prices.

For a full catalogue and any additional information you might require, simply contact the good people at the Educational Software Club on 0702 600557.



• **Kid Talk:** ***a good one from the Educational Software Club.***

RAINBOW ISLANDS

AMIGA GAME of the WEEK

Leisure Genius • £24.99



• Rainbow Islands: *stupendous!*

If a few years ago anyone had said that a non-scrolling platform game featuring cute little dinosaurs that fire bubbles would be a huge success, people would have laughed themselves silly.

Sure enough such a game appeared in the shape of *Bubble Bobble* and it did indeed gain incredible success. So much so that a follow-up was inevitable and any subsequent success wouldn't come as such a shock. The follow up is *Rainbow Islands*, and not only does it match up to its predecessor, it improves on it greatly.

After freeing themselves from the grip of the dragon in *Bubble Bobble*, Bub and Bob regained their human form and escaped to build a beautiful home for themselves and their friends – the colourful Rainbow Islands.

Unfortunately, the past has caught up with the little heroes, and the evil Baron Von Blobb has mustered the surviving monsters from *Bubble Bobble* to attack the Islands. After capturing the inhabitants, he disguised the monsters and scattered them around the seven worlds.

Bub and Bob must travel from island to island knocking out the bosses at the end of each world to defeat Von Blobb. Fortunately they have managed to learn a little new magic. They have 'Rainbow Power!'

This allows them to fire rainbows before them to kill or trap monsters. They can also be used as platforms and bridges, aiding them in reaching their goal.

Being a great fan of *Bubble Bobble*, I was looking forward to *Rainbow Islands* appearing on the Amiga. Now it has arrived, and it's even a good deal better than the coin-op!

The graphics are as good as the original, the sound cuter and the gameplay more challenging. Inded, descriptions of the gameplay bely the sheer playability and addictiveness of *Rainbow Islands*.

Suffice it to say, *Rainbow Islands* is everything that *Bubble Bobble* was and much, much more. If you like games and own an Amiga then there is no room for debate or delay.

Maff Evans

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Atari 1040 STFM	£499.99	£399.99

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"Genius" high quality ST mouse	£29.99	£22.99
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SPECTRUM

SAM EXCITEMENT

After an eternity spent bating breath, drooling with anticipation and performing other potentially friend-losing practices, I've finally seen, in all its white and blue brilliance, my first glimpse of Miles Gordon Technology's long-awaited Spectrum-compatible SAM Coupé computer!

The device in question was nestled among the coffee cups and old copies of *Sunday Sport* in the incredibly plush (ahem) interior of the *Your Sinclair* office which, as you should know by now, is the new contingent of Speccy insurgents at Future Publishing. Although this isn't the time or place for a review, I'm determined to let you have it with a few excited ramblings.

Amazingly, given its whereabouts, the SAM in question was untainted by stains and looked sleek and unsophisticated – in a friendly way. Basically, ignoring the ginormous powerpack that should be redesigned as soon as possible before some unfortunate punter mistakes it for the office block or something, the device is every bit a Speccy for the 1990s. On screen, things are even more aesthetically pleasing!

The only specific pieces of software available at the moment are the demo tape and *Flash!*, Bo Jangeborg's art package. However, on the strength of these alone, we're talking about visuals of ST standard and a far cry from the murky old monochrome we, as Spectrum owners, know and have endured. The sound effect potential looks promising as well, with the 'ringing telephone' noise on the demo tape sending countless people (well, OK then, one) grasping for the real phone.

All in all mine was a really encouraging first encounter, but, that said, I think we're going to have to wait for the first few independent Coupé software releases (like US Gold's *Strider*) before we can see what the machine is capable of and what kind of commercial support it can expect.

In the meantime, find out more by reading the five-page-review of the Coupé in the current issue of *Your Sinclair*, available now at all good newsagents.

ANOTHER ENIGMATIC PLUG

Enigma is the really rather good name for an equally excellent Speccy tapezine that's received its fare share of plugs in this column. In fact it's probably taken up a few other magazines' fair shares as well but, as one of the only Speccy-specific fanzines still dropping through my letter box at roughly regular intervals, each mention has been thoroughly deserved, I assure you.

Anyway, the latest issue (number five) has just reached me hot off the cassette recorder and provides another guaranteed dose of fun for all the family. Well, that is, fun for families of Spectrum fans anyway.

This time the contents have been crammed unceremoniously onto a C90 tape and include features on the Code-Masters CD Games Pack, *Computer Shopper* Show and, quite exclusively, the SAM Coupé. That's as well as the regular favourites of which the comprehensive reviews must be a firm one. Once you've found a few spare weeks to read all the text there's also a sound-to-picture program, border effect source code and 128K music demo to load up and be entertained by.

As usual, the whole thing is written with the kind of enthusiasm that's sadly lacking from a lot of glossy magazines. And the magnetic medium is made full use of, with some truly stunning special FX introducing each section and no fewer than eight different tunes to listen to when you're reading.

Copies are available for the whole range of Speccies (including Coupé, I might add) and on just about every format save punched card. Tape (48K/128K) *Enigmas* cost £1.99 and Plus D versions will set you back £2.50 from Hamish Rust, 15 Westfield Road, Inverurie, Aberdeenshire AB5 9YR.

Enhanced Plus 3 disk issues, with extra bits, are also available and double up as the mag of The Plus 3 Users' Group. Send £3.50 for a copy to Garner Designs, 57 Lovers' Walk, Dunstable, Beds LU5 4BG. (Please, if you could make cheques payable to *Enigma* in both cases).

Robin Alway

TAYLOR-MADE POKES

It gives me great pleasure to present yet another batch of hacks from the worn out Multiface of Mark Taylor, who is obviously foregoing time-wasting activities, like sleeping and eating, in favour of bringing infinite lives to fellow Speccy owners. He's an example to us all, make no mistake about it.

GAME	POKE	EFFECT
R-Type	37452,0	Levels
Robocop	25917,0	Infinite lives
	25424,0	Infinite time
	34039,0	Turbo speed
Wec Le Mans	26110,34	Extra time
Return of the Jedi	46267,201	No trees
Dizzy	54216,0	Immortal
	62745,0	Infinite lives
Great Escape	41953,183	Energy
Nigel Mansell's Grand Prix	33593,255	Gives an extra 255 seconds on Spanish circuit

Thanks, once again, Mark. You will be receiving an ample reward in what is rapidly becoming the near future.

PCW

AARDVARK

Dave Jordan, of Wolverhampton, asks me if it is possible to sort a list into alphabetical order using *LocoScript*. Well, no not really, though you can do it with the following listing.

Save your file and make an ASCII file on it (in the Disk Manager [f1] in *Loco 2* or [f7] in *Loco 1*, select the: 'Make ASCII file,' give the name for the new file as TEMP and select the: Plain Text option).

Reset the machine, insert your CP/M disk and type `BASIC[RETURN]`, then, at the OK, insert a disk with the following listing saved on it and type `RUN "SORT[RETURN]`. Then follow the prompts as they come up.

A new file, a sorted version of TEMP, will be written to the disk. When you get back to *LocoScript*, create a new file and in it 'Insert text' ([f1] *Loco 2*, [f7] *Loco 1*) giving the sorted version of TEMP as the file to insert.

```
10   DIM line$(1000)
20   INPUT "Name of file
      to be sorted";infile$
30   INPUT "Name of file
      to put result in";outfile$
40   OPEN "I",1,infile$
45   OPEN "O",2,outfile$
50   WHILE NOT EOF(1)
60   maxline%=maxline%+1
65   LINE INPUT #1, line$ (maxline%)
70   WEND : FOR i%=2 TO maxline%;
80   PRINT CHR$(13);"line";
      i%;"/";maxline%;
90   FOR j%=i% TO 1 STEP -1
100  IF UPPER$(line$(j%)) >
      UPPER$(line$(j%-1)) THEN 120
110  SWAP line$(j%), line$(j%-1)
120  NEXT j% : NEXT i%
130  FOR i%=1 TO maxline%
140  PRINT #2, line$(i%)
150  NEXT : CLOSE
```

If you've never typed in a BASIC listing before, here's what to do. Reset the PCW, insert the CP/M disk and type `BASIC[RETURN]`.

At the OK just type in each line you see above, ending with `[RETURN]`. If you make a mistake, type `EDIT 50` or whatever the line number is and it reappears; edit it and finish with `[RETURN]`.

Finally, you can save the listing to disk by typing `SAVE "SORT[RETURN]`.

THANKS FOR THE, ERM, ER...

Sharon Lees, of London, is worried about her PCW which has taken to making some files consist entirely of up-arrows. It sounds to me like a problem, not with the Red Indians, as Sharon suggests, but with the memory chips – possibly not a very serious one.

This sort of thing can happen with an 8256 which has had extra memory inserted, which I guess to be the case with yours. One of the plug-in chips might have worked loose and just needs pushing back.

Following the instructions you got with the memory upgrade, take the back off the machine and push the extra chips firmly into place if they're loose.

If the problem persists, ferry your machine to your friendly local computer shop, where the good folks will no doubt see to it for you.

Rob Ainsley

MSX

A FEW WARES

Last week in this column I mentioned a piece of software called *MSX, An Introduction*, and that I expected a copy for reivew. Well, sure enough, one day later this and a program called *Turf Form*, a racing forecaster, arrived, courtesy of Capri Marketing.

When I opened the parcel I was surprised to find that *MSX, An introduction* was a tape plus a 160-plus page book on how to get the best from your MSX 1 computer. The package was produced by a company called Century Software and was originally priced at £12.99.

It seems that this item had been residing in a warehouse for some time and has only now seen the light of day. The book contains many listings, all designed to show off the power of MSX BASIC and, to save you the time of typing them in, they are all supplied on the enclosed cassette.

The book alone is very, very good, and, and when coupled with the enclosed tape and considering the price Capri Marketing is selling the package for (£4.99), I can't recommend this package enough. Indeed, I suggest you buy now, before Capri realises that it is almost giving the package away.

Further, *Turf Form*, the horse-racing forecaster by Blue Ribbon, is something slightly different from the usual software titles that pass my way. Most games and utilities cost you money, so it makes a change to see a piece of software that actually tries to help you make money.

Load in the tape and a series of prompts appear on the screen and, using information that can be found in most daily newspapers, the program assists you in selecting the race meeting that you are interested in, all the major courses being listed.

After inputting the number of horses in the race and their names (using the aforementioned data), *Turf Form* gives a speed rating for each horse and the figure that needs to be attained at that course for a horse to stand a chance.

The program is easy to use and even loads on my MSX 2 computer, which is more than can be said for many new titles. Given that the software is only £2.99 and should be seen as a way of having a bit of fun, not as a means of winning a fortune, then any racing fan will find *Turf Form* enjoyable.

If you think you are going to win a fortune using this title then how come the people who wrote it aren't millionaires? Well worth trying though. Both the above titles are available from Capri Marketing, 9 Dean Street, Marlow, Bucks. Telephone 0628 891101.

More to the point, the MSX version of *Arkanoid* is soon to be re-released on the Hit Squad label, at the budget price of £2.99. So, by the time you read this column, it should be available from your MSX software stockists.

Keith Neal

ALL CHANGE

Abbey Soft, of Spalding, has changed hands and will now be known as Abbey Software. Still the same address, still the same excellent choice of MSX goodies.

YOUR FORMAT

PC 10
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Amiga 14
Spectrum 16
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MSX 16
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CPC

CONSOLE CONFIRMED!

What brilliant news about the CPC! And if you don't know what I'm talking about, take 50 lashes and write 'I must read the news pages in *Express* before I do anything else' 500 times.

I refer, of course, to the shock news that Amstrad is not only going to launch a console, but that the 464 and 6128 are going to be upgraded as well.

I confess to having mixed feelings still about the console. After all, although the CPC is an excellent home micro, the technology is getting a little long in the tooth for a dedicated games console. It all depends on what hardware enhancements Amstrad make, of course, but the new console's main rival will be the well-established – and extremely proficient – Sega Master Console.

Prices being bandied about for the Amstrad offering are in the region of £100, whereas the Sega currently sells at £70. What Amstrad does have, however, is truly formidable marketing clout. If the CPC console is to be a success, Amstrad is the company to do it.

And the cartridges aren't going to be cheap, either. Prices are expected to be around £30, which will put the games on a par with those for the Sega. The sheer cost of manufacturing cartridges, I'm told, is the main reason for those prices, so I suppose we can't complain.

What I find really exciting, though, is the prospect of enhanced 464s and 6128s. The story is that both will take the new cartridges, which suggests that whatever hardware enhancements the console receives will be incorporated into the micro versions.

If that was not enough, even better is the prospect of new, super-huge games. The cartridges are expected to store in the region of 256-512K, and when you couple that with near-instant loading, well...

Steady on. Amstrad is saying nothing, of course, and we'll have to wait until September to judge the accuracy of all the speculation. One thing occurs to me straight away, though. Now we know why Amstrad only spent £600,000 promoting the CPC over Christmas...

NICE TO A FAULT?

Rainbow Islands almost never happened. Which, if you find its particular brand of cuteness borders on the nauseating, might be no bad thing.

Taito originally sold the *Bubble Bobble* sequel licence to Telecomsoft. Then Microprose bought Telecomsoft. Then Microprose thought 'let's go ahead with *Rainbow Islands*'.

Then Taito said it couldn't because the licence was sold specifically to Telecomsoft. Then... yes, well, to cut a long story short (OK, shorter) Ocean got hold of it, and *Rainbow Islands* has just hit the streets under the auspices of the Manchester mob.

So what's all the fuss about? Well *Rainbow Islands* is really nothing more than a platform collect-'em-up, but it is, graphically anyway, quite excellent. The soundtrack is really good as well.

But if you thought *Bubble Bobble* was cute, just hold on to your lunch. You control a plump little chappie who throws rainbows at his enemies to fight them off, and who must climb higher and higher to avoid a rising flood.



• *Aaaah: go on, say aaaah.*

If our hero is cute, his foes are positively stomach-churning. On the first island you face ladybirds, bees, spiders and other insects, while on the second there are swarms of little toytown tanks and cheery-faced bomb-lobbers.

The thing is, though, it really is a good game. It's extremely playable, even to such a hard-bitten, world-weary hack as your author, and kids – frankly – are just going to love it to bits.



• *The end-of-level arachnid on Insect Island.*

THE WORLD ON ITS HEAD

I have a letter here from Tom Kennedy of Exeter, a gentleman who is either one of the most astounding lateral thinkers of this century, or completely off his trolley. Judge for yourselves:

"About 4 minutes 22 seconds ago I had an amazing idea that will revolutionise the games world! It will make me millions of quid in royalties, and I'll become famous overnight! Well, that might be a slight exaggeration, but here it is.

"Why don't the games manufacturers write games sideways? All you have to do is turn the screen on its side, and you'll have a much taller playing area to use. It would have to be clearly stated that it was a sideways game on the packet, but it wouldn't be too awkward. It would have enhanced games such as *R-Type*, *Ghostbusters 2* (first level) etc. The joystick movements could easily be changed to suit. What do you think?"

What do I think? Well, I've got some much better ideas. Don't turn your monitor onto its side at all, just put it on the floor and lie down to play! Alternatively, some enterprising widget maker could produce a special pair of specs that use mirrors/prisms to rotate your view of the world through 90 degrees... (OK 'till someone brings you a cup of tea.)

OK, I give up. That's either an incredibly smart idea or an incredibly stupid one. And I'm damned if I'm going to commit myself and say which.

Meanwhile, if any other brainboxes out there have ideas for revolutionising computing on the CPC, I'd love to hear them. (No, I would, really...) Just write to me c/o the CPC column, *New Computer Express*, Beauford Court, 30 Monmouth Street, Bath BA1 2AP.

Rod Lawton

C64

A TICKLE IN THE SLIPS

No doubt to encourage Graham Gooch and the rest of the lads out in the West Indies, Audiogenic have re-launched *Graham Gooch's All Star Cricket* using a built-in database of teams from all the test match playing countries that is as up-to-date as it can be.

Perhaps Graham Gooch has a C64 with him, because our plucky team certainly won their first warm-up match against a Barbados XI! It's a graphical rather than a text simulation, and seems to have more features than the computer used to help out the BBC during its extensive cricket coverage. About the only thing it lacks is Richie Benaud doing the commentary in his own unique way, but for £12.95 on disk or £9.95 on tape you can't have everything.

THE LAD DONE WELL

Emlyn Hughes, currently on television more often than Ceefax, gave his name to Audiogenic's *International Soccer* a long time ago. More recently, another game bearing his name has appeared, in the form of a variation on a familiar theme: *Emlyn Hughes' Arcade Quiz*.

I hear that the company has also signed up West Ham's manager for a league manager simulation. Is this a wise move, I wonder? Will we see pictures of Ken Bates (I know he's at Chelsea!) paying player's fines for them? Where will it all end?



• *The original Emlyn Hughes'* International

CARTOON TIME

Another one to keep your eyes peeled for this month (no, this time it's not from Audiogenic) is a cartoon animation game called *Flimbo's Quest*, coming soon from System 3.

The press release mentions the quality of the cartoon animation, underneath which lurks a seven level platform game looking strongly like: 'Rescue the girl before the mad professor gets to her,' doing battle with various freaks and weirdos along the way. Bit like being on the London Underground really.

GETTING ADVENTUROUS

Mr Newton of Manchester can't work out what to do with the creature in the cabin in the C64 game *Escape from Pulsar 7*. Try baking a drugged cake in the galley using the bottle of water, cake tin, flour and raisins and giving it to the creature.

It must be the white pills that do it!

Pete Gerrard

QL

MORE MEDUSA

Some more information about the proposed Medusa QL clone has turned up, courtesy of the QView International Megacorporation – the people behind the Minerva QDOS replacement.

The processor will be either a standard 68008, as used in the original QL, the enhanced 68008FN (it can address up to 4Mb of memory) or the 32-bit 68020, with 512K bytes of 8/16-bit memory and up to 4Mb of 8/32-bit memory. The standard QL custom chips will be used.

Options are to include: a floppy disk interface; improved serial port; PC-compatible keyboard; parallel printer port; maths co-processor; and an SCSI hard-disk interface.

The operating system will be standard QDOS, Minerva or QJump's new SMS2, that is being developed for the Atari ST's QL emulator.

PIRACY

QJump's latest newsletter has an interesting section about the various QL emulators that are now available, running on the Atari ST and the Amiga. The point is made that they are all illegal and some are more illegal than others, depending on the amount of pirated QJump software they incorporate. The Amiga emulator, for instance, contains QJump's floppy disk drivers.

These emulators could also be considered to infringe Amstrad's copyright, as Amstrad owns the rights to QDOS. However, it appears that Amstrad isn't interested in jumping on individuals who transfer QDOS from the QL to another machine for their own use. This confirms what I said about the Amiga emulator a few issues ago.

To get round any legal problems, QJump is working on a completely legitimate QDOS-compatible operating system called SMS2, for the Atari emulator and for the Medusa project mentioned above. An interim version of the SMS2 device drivers is now available for the Atari emulator, bundled with a new version of *Toolkit 2*. Contact QJump on 0954 50800 for more details.

John Torofex

QUANTA AT BRISTOL

QUANTA, the QL user group, is holding a workshop this Sunday (March 4) at Somerset Hall, Portishead, Bristol. A 'bring and buy' sale will take place along with a new activity – 'software seminars'.

These seminars will enable traders to demonstrate products to large numbers of punters in comfort. Two large monitors will be in use and there will be several rows of easy chairs.

Even if you don't belong to QUANTA (highly recommended, by the way) you'll be made very welcome. Further details from one of the directors, Chris Gregory, on 0272 513653.

BBC

BULLSEYE

Going on very slender evidence, Acorn's Archimedes is meeting, or exceeding, current sales targets. However, one market remains wholly indifferent to its charms, and that is business. Of course, MS-DOS has increased the machine's share of this much-sought after market, but the share still remains low. Strangely enough the Model B sold in the thousands to the business community.

This latter truth was brought home to me when I visited Cambridge. At Anglia college, where I was checking out the DTP facilities, the lecturer reminisced about how he could copy anything done by the college's dedicated typesetting terminals using his BBC at home.

What is more at Quantum Biosystems, a company involved at the sharp end of biotechnology, many BBCs were still in evidence when I visited. The machines were hooked up to measuring instruments. But remember, very strong inducements to buy were on offer in those days, including generous government grants and large discounts to corporate buyers.

Alas, no such inducements were on offer to the likes of you and me, so in the end sales dropped off as the competition closed in. In any case, Acorn made precious little out of the Model B by the time the BBC slice had been extracted.

Furthermore, for all ardent users of the *Wordwise Plus* programming language, an excellent – if probably out-of-print – book is *Using Worldwise Plus* by Paul Beverley. This volume is packed with useful segment programs, but I really don't know where you could acquire a copy.

IN THE WORDS

I must admit to a few giggles when I saw the following job advertisement: "The leading magazine for all users of Acorn computers requires a new editor to continue its successful eighty year history." I think I hear the sound of gunfire over at Redwood Publishing, home of *Acorn User* magazine.

Back to prosaic matters – and I see that Ian Copestake, publisher of *Wordpower*, has brought out some new printer drivers for *Pipedream 3*. And on the BBC front, you can now pick up 7 Star LC-10 dot-matrix typefaces for the sum of just £32.

As a brief explanation, a typeface, as opposed to an actual font, is considered to be a single style of one font. For example, Roman Italic and Dutch Italic are single typefaces of the fonts Roman and Dutch respectively.

The distinction may appear trivial at first sight, but when you start describing fonts stored as outlines, such as those provided with PostScript laser printers, then it is crucial. Dot-matrix printers blur the line by their ability to manipulate text in specific ways – so creative possibilities remain wide, although the fonts are few in number. Contact Ian at 10 Frost Drive, Wirral, Merseyside. Alternatively, telephone 051-648 6287.

Andrew Brown

XE

PLAYING WITH WORDS

Since telling you about the *SuperScript* word processor I've had many letters from 8-bitters wondering just which of the commercially-available word processors is the best.

Probably the most well known of the packages is *AtariWriter* from Atari. Originally available in cartridge form, the program became popular enough to warrant an updated version to be released, known – not surprisingly – as *AtariWriter II*.

This updated version features address book and mail merge, 80-column editing (via a 'window' on the document) and spell checking – and it is a comprehensive and easy to use program!

Further, *Paperclip* was the last, and best, in a long line of 8-bit word processors to be released. Streamlined and powerful, the program offered a number of unique features. Indeed, multi column editing made this word processor the first choice for newsletter and fanzine writers everywhere, and the ability to hold and display two documents at once in seperate windows on screen and edit between them at will was way aheadof the competition.

Paperclip is the most powerful, but it is exceedingly difficult to get hold of and unless you can find a copy second-hand, you probably won't get it.

That said, *AtariWriter* is still fairly widely available (mail-order), is cheap (under £20) and powerful and it should be your first choice.

Edmund Blake

ARCHIMEDES

FOLDED 3D

expLAN is a Devon-based company whose current Arc product, the *ARCOL* design package, is highly regarded in those secondary schools lucky enough to have Arcs. The company's new product is even more innovative, though, as it takes the idea of 3D modelling (now part of the National Curriculum) and turns it into cardboard.

TABS, currently in an advanced stage of development, enables the drawing of most types of model in full 3D shaded views, but with the big bonus of automatically 'unfolding' the object on screen. A multi-window interface, which will be fully RISCOS compatible, shows several views of the object at once, including the flattened one. Once complete, the model can be printed onto card using an A3 plotter or laser printer and assembled.

Files from *TABS* can also be loaded into *ARCOL*or *Euclid* for colour printing or further design work. All expLAN's products can be fully networked, meaning that many students can work on a larger project and combine their resources towards a common goal.

TABS is expected to cost around £100 in single-user version and £250-ish for a site licence. It should be available in May, and expLAN can be contacted on 0822 613868.

FORMATTING 360K

If you have an old BBC switchable drive attached to your Arc to run a PC emulator, you may well want to format 360K disks on the 5.25-inch drive. As things stand, any external drive connected to the Arc will be seen by MS-DOS as a 720K 3.5-inch unit. This is fine if you're after high capacity on your 5.25-inch, but the format is non-standard and you won't be able to read the disk easily on a 'real' PC.

To change the drive to a more standard 360K capacity, you have to tell the operating system about it. This changing can only be done when you start up the system, and make use of the `CONFIG.SYS` file. This system file is automatically read by MS-DOS at start up and normally contains set-up information.

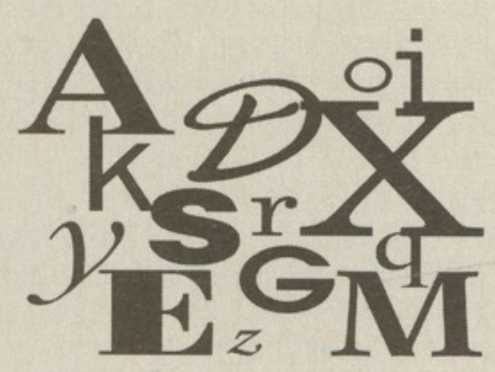
The default file supplied with the Acorn emulator contains the two line `files = 20` and `buffers = 10`. These commands define the memory allocated to file details and the space for buffering information to and from disk. You can increase either for a slightly faster access, but at the expense of memory.

To tell MS-DOS about your 5.25-inch drive, you add the command `drivparm = /d:1 /f:0 /h:2 /s:9 /t:40`. A lot of abbreviations, but each one tells the system some detail of the drive's configuration – d, for example, is the drive number.

Confusingly, drives are numbered rather than lettered, using 0 for A:, 1 for B: etc. f is the format number, which is 0 for 360K drives, 1 for 1.2 Mb and 2 for 720K, among others. h is the number of heads; 1 for a single sided drive and 2 for a double. s is the number of sectors per track, which is 9 for both 360K and 720K drives. t is the number of tracks: 40 for 360K and 80 for 720K.

You'll need to use a text editor or word processor to edit the `CONFIG.SYS` file, and EDLIN will do the job if you have nothing else. You can use 48 TPI double-sided disks for the 360K format, but you'll need 96TPI for 720K work.

CHEAP FONTS



If you're deep into DTP, you'll no doubt be curious about an offer of Acorn-compatible scalable fonts from £1.99 a throw. The Electronic Font Foundry is indeed making an introductory offer at that price. But hurry, it will have to put its prices up to £3.99 a font before long!

To those of use used to the price of fonts on other machines, this kind of pricing structure seems heaven-sent. If you think of the work involved in defining the curves that form a character, let alone a whole set of them, you start to wonder how they can do it.

There's no telephone number, but if you'd like details, write to: The Electronic Font Foundry, 18 Brockenhurst Road, Ascot SL5 9DL. I'll tell more when they write back.

Bertrum Carrot

Ladbroke Computing International

ST World 'Best Dealer' 1989

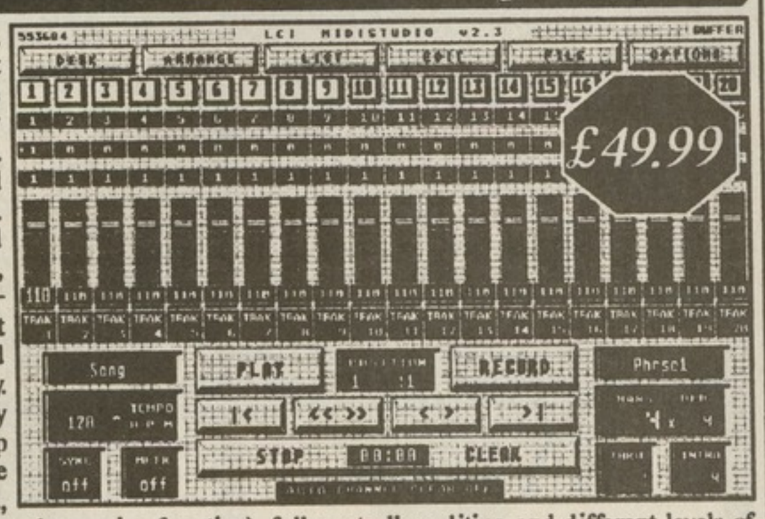
Amiga

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Midistudio 20 track ST Midi sequencer



Midistudio is an attractively priced, 20 track Midi Sequencing package. It can record up to 682 bars per phrase (pattern) on up to 100 phrases. Any phrase can be placed on any track. Tracks can be soloed and muted and tracks and phrases can be named. Program numbers can be displayed in a variety of ways including 0-127, 1-128, in banks from a11-b88 or a01-b64. The Desk features sliders to set relative volumes on each track and you can even do a mix on the fly. Midistudio also has a clock to display the length of the last playback. Step time note edit functions are available including copy, split, merge, append, transpose, velocity editing (including a humanize function), full controller editing and different levels of quantizing. Midistudio works in medium and hi res and a demonstration disk is available for just £3.99.

IMG scanner Scan at up to 1000 Dpi

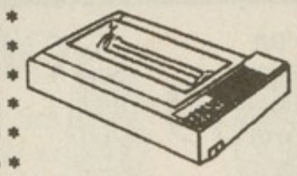


The IMG scanner is a realistic, low cost scanner which can offer high quality graphics digitising for a tenth of the cost of other scanners. This simple unit plugs into the cartridge port of the ST and accepts scanned information via optical cables which fix easily to the head of any Epson compatible dot matrix printer. The software allows grey scales to be replaced with colours, 4 in medium resolution and 16 in low resolution and offers scanning resolutions of 75, 150, 216, 300, 360 and 1000 dots per inch horizontally. Best results are achieved with photocopies. Greater than screen resolution images are saved in IMG file format and can be edited with any compatible art package. Screen resolution images can be saved in Raw data, Degas or Neochrome formats and edited with compatible art packages.

Midistudio Master. 30+ new features £129.99

Low resolution demonstration disk £3.99

Best Selling Printers



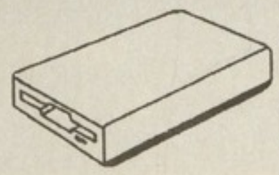
Star LC-10.	140/36cps	£ 159.99 *
Star LC-10 Mk II.	180/45cps	£ 189.99 *
Star LC-10 Colour.	7 colour	£ 199.99 *
Citizen 120D.	120cps	£ 134.99 *
Star LC-24/10.	170/57cps	£ 239.99 *
Citizen Swift.	192/64cps	£ 319.99 *

Star Professional Series Printers

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Star Laser Printer 8, 1 Mb RAM.		£ 1599.99 *
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Atari SLM804 Laser with 90 days on site warranty.		£ 1129.99

* All these printers carry a 12 months on site maintenance warranty and come complete with Centronics cable. On site warranty UK mainland only. All printers are top quality products for the UK.

ST & Amiga Disk Drives



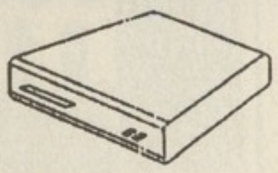
Cumana 3.5" CAS 354.	(ST)	£89.99
Ladbroke's 3.5" 1Mb	(ST)	£69.99
Cumana 1Mb, internal.	(ST)	£74.99
Please note, ST's case requires modification for this internal drive.		
A/B boot switch, fitted.	(ST)	£24.99
Cumana 3.5" CAX 354, disable switch etc.	(Amiga)	£74.99
Ladbrokes 3.5", 1Mb, disable switch etc.	(Amiga)	£64.99

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Philips 8802 Colour	£239.99 *	Mouse mats from	£ 5.99
Philips 15" FST, remote, Scart input, Tv with 60 tuner presets, timer and teletext.	£259.99	Mouse/joystick extension	£ 5.99
		Amiga modulator	£ 19.99
		Hawk scanner	£ 1249.99

* Deduct £10 if bought with computer, Scart cable included

ST & Amiga Hard Drives



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Third Coast 65Mb	(ST)	£599 .99
Third Coast 65Mb	(Amiga)	£659 .99
Vortex 40Mb	(Amiga)	£499 .99

Ladbroke Computing Hard drives

We have a range of high quality ST hard drives at affordable prices. All have a minimum specification of: full metal case with push button on/off switch mounted on front and 60 watt PSU, Autopark mechanism, has room, power connections and controller capability for second mechanism, external push button DMA device No. selection. The low power controller is full SCSI and can support up to 8 drives. The software includes Autoboot, up to 14 partitions on ST, 100% AHDI 3.2 compatible driver.

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STFM Blitter chip,fitted	£ 39.99 *	STFM Blitter chip, kit	£ 49.99 *
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* Please check configuration before ordering. Our Atari trained engineers can repair all hardware, including Amigas, in minimum time at competetive prices. Fitting prices quoted for machines not previously tampered with. All upgrades and repairs carry our 3 months parts and labour guarantee.

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- Network up to 32 ST's.
- Up to 500 Ft between ST's.
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- 30% bigger screen area than Mac Plus.
- 128K ROM's in stock.

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Entertainment packs

520 STE Explorer	*£279.99*
520 STE Power pack	*£369.99*
1040 STE Hyper pack	*£459.99*
520 STE upgraded to 1Mb	*£349.99*
Amiga Batman pack	*£369.99*
Amiga Batman + pack	*£399.99*

Phone for 520 and 1040STFM's

Power pack consists of Organiser software, First Basic, First music and games including, Afterburner, R-Type, Gauntlet II, Super hangon, Space harrier, Mousetrap, Buggy boy, Super huey, Eliminator, Nebulus, Pacmania, Predator, Bombjack, Bombuzal, Xenon, Double dragon, Blacklamp, Outrun, Stargoose, Starray.

Hyper pack includes Hyper Paint art package, Hyper draw vector drawing package, Borodino strategy game and Metacomco Basic.

Batman + pack includes A500 Batman pack, mouse mat, joystick and the Tenstar games pack with Photon paint.

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All disks are Sony, Maxcell or Kao and carry an unconditional lifetime guarantee. Please add 60p P&P for each pack of ten disks.

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Atari DMA cable	£15.99	Disk drive cover	£2.99

Disk boxes from £4.99. Phone for care kits.

Business & DTP Systems

Mega ST1 + SM124	£	*599.99*
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4Mb upgraded 520STE	£	*699.99*
Portfolio (pocket PC)	£	*224.99*
Atari PC4 (80286)	£	*1349.99*
Atari PC5 (80386)	£	*2069.99*
DTP Mega 2 pack	£	*1674.99*
DTP Mega 4 pack	£	*1999.99*
A4 Flat bed scanner	£	*449.99*

This high quality 200dpi flat bed scanner is also a thermal printer and photocopier. It can scan high resolution images in up to 16 grey scales. Software runs on Amiga and ST (ST software includes editor) and requires 1Mb of memory. This is probably the most cost effective piece of office equipment you could own. Centronics cable included.

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ATARI ST

We currently stock over 800 disks full of PD/ Shareware for these machines, containing every imaginable type of program! Choose from ALL the Public Domain, not just "a selection". If you are new to ST'ing why not join "Clubville", our popular user group, £6:50 gets you newsheets, offers, special prices on goods, 5% Off blanks/PD etc.

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THE SHOPPING EXPRESS BUYER'S GUIDE TO DTP, GRAPHICS AND DIGITISERS

The computer has revolutionised the publishing industry. With some software and a few hardware add-ons it's now possible to create entire documents on screen, complete with photographs and illustrations. To find out what's available, read on...

From paste-up to PostScript, the world of desktop publishing has arrived on your micro. So whether its a club newssheet or a magazine like *Express*, there's a variety of packages to suit your needs.

Desktop publishing sells computers. Its massive growth in recent years on the Apple Macintosh and PCs has spawned a wide range of products for other micros. But you could easily spend £10,000 on a system so what should you look for if you've only a few hundred at your disposal? *Express* looks at the DTP packages that will allow you to input, import and edit text and graphics in a friendly environment. Last week we looked at scanners, so for good measure we also include a round-up of another means of importing pictorial material into your publishing efforts – digitisers.

PC DTP GUIDE

It's best to go for GEM-based DTP packages as they all offer output to dot-matrix and laser printers – and the device-independent, page description language PostScript used by professional printing companies.

● VENTURA PUBLISHER V2

Rank Xerox • 0895 51133
£914

A GEM-based heavyweight supporting documents up to 999 pages, and offering master templates, style sheets and text import. A comprehensive range of features with precise control over layout and typography ideally suited for technical applications.

▲ Complete PC DTP for business and technical documents
▲ Fully automated text entry and layout

▼ Can't flow text around graphics
▼ Expensive

Value for money ★★★★

● PAGEMAKER 3

Aldus Europe • 031-336 1727
£800

Running under Microsoft Windows and geared towards the pro-graphics designer, needs a 286 or 386 for effective use. Documents can be up to 128 pages, text can be flowed around graphics very easily and the package includes colour support. Perhaps most useful, parts of pages can be worked on separately and then combined when completed.

▲ Allows simultaneous control of different page components
▲ Easy to use with its pop-up menus

▼ A little slow even on fast PCs
▼ Price

Value for money ★★★

● FINESSE 2

Logi UK • 0925 413501
£171

Once known as *AMS*, this GEM-based package works with frames, but treats input or imported text and graphics separately and colour codes them. Documents may be up to 16 pages, and masters and paragraph styles can be pre-recorded for fast layout.

▲ Flexible with many useful features
▲ Good manual with excellent tips on design

▼ Limited typefaces

Value for money ★★★★

● JETSETTER 4

Garbo Systems • 0736 67166
£399

A wide variety of fonts and text sizes up to 750 point make *Jetsetter* unique. Separate menu driven screens for graphics and text allow good control of graphics but limited text editing functions. However graphics are bitmapped and can't be resized larger than the original

▲ Excellent with a laser printer
▲ Versatile graphics handling

▼ Difficult text editing

Value for money ★★★

● TIMEWORKS DTP

GST/Timeworks • 0954 81991
£129
ALSO AVAILABLE FOR ATARI ST

One of the first medium priced DTP packages, GEM based and compatible with the wide range of Bitstream Fontware. A frame based system incorporating master templates, paragraph styles, page guides and automatic text wrap-around graphics. *Timeworks* also includes a a good range of drawing facilities and is able to handle documents up to 999 pages.

▲ Excellent DTP at budget price
▲ Imports wide range of text and pictures

Value for money ★★★★★

● FLEET STREET EDITOR

Mirrorsoft • 01-928 1454
£184
ALSO AVAILABLE FOR ATARI ST,AMSTRAD PCW, AMSTRAD CPC, BBC

A GEM style package, Bitstream font compatible, but generally slower to use than real GEM DTPs. Both text and Graphics can be manipulated on the same screen and overlap each other. A wide selection of clip art is supplied but the working document has to be reloaded before insertion.

▲ Good clip art selection
▲ Wide file format supported

▼ No automatic reflowing of text
▼ Relatively slow and unfriendly

Value for money ★★

● GEM DESKTOP PUBLISHER 2

Digital Research • 0635 35304
£397

You might expect something special from GEM's authors but what you get is a package which is very memory intensive although offering the usual page layout, paragraph tags and frame-based text formatting. On the plus side, it does include good text and graphics import and the rare ability on PCs to alter spacing between words.

▲ Inexpensive frame formatting
▲ Flexible text handling

▼ Slow

Value for money ★★

AMIGA DTP

● PUBLISHER'S CHOICE

HB Marketing • 0895 444433
£99.95

Coming complete with the *Kindwords* word processor, the *PageSetter* text and graphics editor, a disk of headline fonts and the *LaserScript* utility that configures your documents as PostScript compatible, this really is a choice product. Working on the frame and grid principle, *PC* provides separate text, graphics and layout screens with the useful addition of full feature pasting facility.

▲ An comprehensive package
▲ Includes spell checker and thesaurus

▼ Slight lack of integration between component parts

Value for money ★★★★★

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REPAIRS FOR AMIGA AND ATARI

● PROFESSIONAL PAGE

HB Marketing • 0895 444433
£249.50

Based on the industry standard, *Pagemaker*, frame-based documents can be picked up moved off page and re-pasted at will and at ease. Supporting text flow, zooms, handy drawing utilities and high-resolution bitmapped graphics, *PP* also offers colour separation control – all at an amazingly low price. There's a page review mode and PostScript printing is also catered for.

▲ Excellent value for money
▲ Perfect for high-resolution pages and colour separation

▼ Needs two drives or a hard disk

Value for money ★★★★★

● PAGESTREAM

Silica Systems • 01-309 1111
£171.35

A frame based package, which also uniquely allows you to rotate text and graphics material in three dimensions. Aside from the usual DTP features, page view, variable zooms, automatic text wraps, and a range of text styles make the product very comprehensive.

▲ A wide range of flexible control
▲ Unique 3D text and graphics handling

▼ Limited colour separation

Value for money ★★★★★

● CITY DESK

Precision Software • 01-330 7166
£157

A different approach offers the user a column-based formatting package in which imported text can be shunted around the page as if it were a graphic object but font, sizing and style attributes are messy. A rather simplistic graphic editor does it business adequately enough but despite some power, CD suffers from the lack of a GEM-type interface.

▲ A powerful low-cost package
▲ PostScript supported

▼ Formatting commands entered as code
▼ Terrible manual complements a difficult interface

Value for money ★★★

● SHAKESPEARE

Cloudhall • 0604 231 2111
£99

The only budget DTP package that allows colour on the page to be carried through to hard copy also supports mono PostScript output and is frame-based. However there's no zoom facility and font,style and size attributes are lost when text is reflowed. IFF colour graphics can be imported but not HAM, however 32 colours can be displayed on screen and palettes changed accordingly.

▲ Ideal for colour printer owners
▲ Accurate text positioning

▼ No format data can be imported with text
▼ No drawing tools included

Value for money ★★★

ST DTP

● PUBLISHING PARTNER

Clik ST • 0753 682 988
£159.99

Excellent GEM-based pagemaker system, with multiple-on screen pages, impressive range of fonts and text sizes and facility to import different ST graphics formats. Also includes a range of drawing tools and variable magnification. Fast screen updates and high quality printer output

▲ Comprehensive and fast
▲ Excellent value

Value for money ★★★★★

● SIGNUM 2

Signa • 0252 31600
£184

Billed as a document processor, Signum allows text to be placed and adjusted to accuracies of up to 1/90th of an inch as well as imported graphics and technical fonts and symbols. Dot-matrix and laser printers are supported.

▲ Fast screen updates and response
▲ Compatible with Signa's scanners, digtisers and Mac emulators

▼ Price

Value for money ★★★

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● FLEET ST

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● TIMEWORKS

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see PC guide above for comments

ARCHIMEDES

● IMPRESSION

Computer Concepts • 0442 63933
£171

Designed specifically for RISCOS, *Impression* multi-tasks with other applications and supports data transfer between them. Capable of handling complex magazine layouts it comes with an outline font manager and typesetting quality printouts.

▲ Ease of import and editing
▲ Super-fast screen handling

Value for money ★★★★

● ACORN DTP

Acorn • 0223 245200
£149

Similar to the original *PageMaker* for the BBC B, Acorn's own package is based around frames into which a wide range of text styles, sizes and fonts can be combined with a range of imported graphics to produce high-quality printed output

▲ Demands a knowledge of DTP
▲ Fast screen handling

Value for money ★★★

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● STOP PRESS
Database • 051-357 2961
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A well-designed desktop publisher which doubles up as a graphics package. Besides being able to display data as graphs, pie charts etc, and manipulate draw objects, there's also a zoom feature, image superimposition and a clip art library. You can print up to 108 pages in one go, choose from 14 different fonts and use up to 96 point type size.

▲ Great graphics handling
▲ Accurate positioning and layout

▼ Poor facility to undo mistakes.

Value for money ★★★★★

AMSTRAD CPC

● STOP PRESS
Database • 051-357 2961
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The DTP package for the CPC, *Stop Press* allows you to produce text of any size with a wide range of fonts and run it around illustrations you've drawn and edited. You can make fine adjustments, add patterned borders, create boxes, add shaded backgrounds and even fill circles with text.

▲ An impressive and comprehensive all-rounder
▲ Fantastic text and graphics handling

▼ You need a mouse

Value for money ★★★★★

COMMODORE 64

● STOP PRESS
£39.99
See notes above

BBC

● WAPPING EDITOR
Watford Electronics • 0923 37774
£69

Coming on a 64K ROM, this package has a sophisticated graphics module, pro-typesetting software, a word processor, font editor and a variety of printer dumps. It's mouse control allows you to create pages from A6 to A3, and print up to 150 characters across a A4 page. Multiple columns and pages are also supported.

▲ Very user friendly
▲ Extremely comprehensive range of features

Value for money ★★★★★

PC GRAPHICS

● PC PAINTBRUSH
Microsoft • 0734 500741
£145

Bitmapped painting package which offers a reasonable range of tools and functions to build impressive graphical displays. This program allows you to perform everything from simple sketches to complex and colourful designs.

▲ Microsoft is synonymous with quality
▲ Moderately easy to use

▼ Not cheap

Value for money ★★★

● DELUXE PAINT II
Electronic Arts • 0753 46465
£99.95

Comprehensive painting program also available for other machines which features functions such as dithering, lots of fills, stencils, in fact everything necessary for the budding silicon artist.

▲ Comprehensive and fully featured
▲ Gets the most from the limited PC display

Value for money ★★★★

● CORELDRAW!
CTRL ALT DELI • 0908 662759
£460

Advanced paint program with many functions including full traced bit-mapped graphics, lots of colours and fills and an easy to learn user interface. If you have a yen to tinker with paint and design but don't want to learn complex command sequences this is for you.

▲ Easy to learn and use
▲ Bit mapped graphics

Value for money ★

● VP GRAPHICS PLUS
Paperback Software • 0245 265017
£114.95

Not a paint package as such but rather a program which allows you the user to produce graphs and charts depicting a variety of information. You can draw histograms, pie charts, line graphs in fact everything necessary for business graphics display.

▲ Full range of charts available
▲ Easy to use

▼ Not for artists

Value for money ★★★

AMIGA GRAPHICS

● DELUXE PAINT III
Electronic Arts • 0753 46465
£79.95

The painting package for the Commodore Amiga. All possible functions including dithering, patterned fills, stencils, use of perspective, rotate and scaling effects as well as wrap fills, shadow painting using EHB and last but not least incredible animation making full use of all available tools.

▲ All possible painting functions
▲ Powerful animation

▼ A little daunting

Value for money ★★★★

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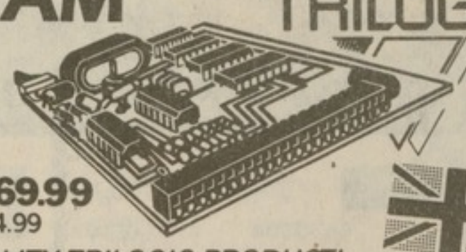
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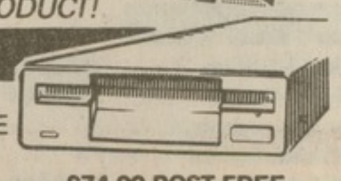
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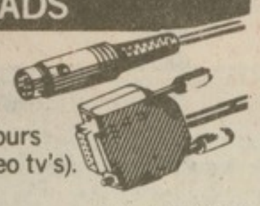
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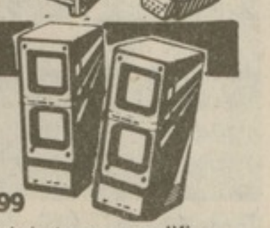
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● PHOTON PAINT 2

Microillusions • 0480 49497
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This is the package for the novice. A very easy to use painting program that is both powerful yet simple to learn and exploit. There's full use of HAM modes, airbrush, texture mapping, variable blend control and animation. Recommended.

▲ Easy to use
▲ Many functions including animation

Value for money ★★★★

● PROFESSIONAL DRAW

HB Marketing • 0895 444433
£155

For those who want to create professional designs this is the package. Professional Draw has an easy to understand user interface featuring many icons which relate well to their respective operations making it easy to get the most from the program.

▲ Structured approach simplifies operations
▲ Reasonably priced for professional quality CAD

▼ Requires a little draughting knowledge to get the most from the program

Value for money ★★★

● DIGIPAINT V3.00

HB Marketing • 0895 444433
£60

The original and still one of the best. Fully-featured HAM painting package with sexy functions such as 4,096 colours on-screen and lots of special effects including `shading, blending and tinting. What's more this latest version also features text, overscan and texture mapping and is £20 cheaper than earlier versions.

▲ Plenty of features for the money
▲ Special effects tools

▼ Not the most comprehensive paint package

Value for money ★★★★

ATARI ST GRAPHICS

● CYBER PAINT

Electric Distribution • 0480 496666
£69.95

Breath-taking bitmapped animation and graphics package from American magazine/software publisher Antic. This program features some incredible effects including tweening (changing one object to another a line at a time) and very powerful animation functions. Rivals the Amiga and is highly recommended.

▲ Very powerful animation
▲ Stunning effects
▲ Cheap

Value for money ★★★★★

● DEGAS ELITE

Electronic Arts • 0753 46546
£24.95

Like *Digipaint* for the Amiga, Degas *Elite* was one of the very first painting programs available for the Atari and it's still one of the best. You can have up to eight word screens at once cut and paste between any of them and there are plenty of useful and powerful functions such as zoom, block handling etc.

▲ 8 screens available
▲ Powerful block handling

▼ Lacking in features when compared to latest offerings

Value for money ★★★

● SPECTRUM 512

Electric Distribution • 0480 496666
£59.95

Painting package featuring (as its name suggests) 512 colours. The program is simple to use and effective. There's some very powerful functions too in the form of anti aliasing and gradient fill.

▲ Lots of colours
▲ Easy to use

▼ A little expensive

Value for money ★★

● ADVANCED ART STUDIO

Rainbird • 01-240 8838
£22.95

Aimed at those with a serious interest in producing quality art/graphics displays. The Advanced Art Studio has an enormous range of fills as well as comprehensive zoom and text handling complete this package.

▲ Lots of fills
▲ Powerful manipulation tools

Value for money ★★★★

ARCHIE GRAPHICS

● ATELIER

Minerva Software • 0392 437756
£99.95

The Acorn Archimedes with its immense computing power is the ideal machine for complex graphics manipulation and *Atelier* from Minerva Software exploits that power to the full. All tools and functions necessary for complex design and drawing.

▲ Powerful and comprehensive
▲ Easy to use

▼ A little expensive

Value for money ★★★

● PRO ARTISAN

Clares Micro Supplies • 0606 48511
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Professional release of the evergreen *Artisan* paint program. This package features 256 colours and 15 modes of operation.

▲ Lots of help screens

▼ Requires at least 1Mb of memory

Value for money ★★★★

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Superior painting program for Spectrums equipped with 128K or above. Plenty of fills, colours and features such as zooming, windows and text handling. Reasonably priced and featured.

▲ Plenty of tools, colours and fills
▲ Easy to use

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▲ Full featured
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● VIDI

ROMBO PRODUCTIONS • 0506 414631
(free demo disc available)
FOR PC £115
FOR AMIGA £99.95, £119.95 (colour version)
FOR ST £99.95
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Grabs 16 shades of grey from videotape recorder or camera with software. the plug in card feature as a phono socket for the video signal input and controls for brightness and contrast. depending on the machine,the software allows real-time capture and display – on the Amiga it's four frames a second. If you have extra memory you can store images in RAM and play back animated sequences.

▲ Good low-cost performance
▲ Can control hardware from your own programs

▼ Performance dependent on host machine

Value for money ★★★★★

● THE DIGITISER

DATEL • 0782 744707
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FOR ST £79.99 (works in mono and colour)
FOR COMMODORE 64 £79.99

Plugging into a parallel port, the hardware frame grabs at 1/50th second and screen updates at one frame per second allowing the software to edit,cut and paste portions of the 16 grey scale picture along with special effects such as reversals and mirroring.

▲ Impressive features at the price
▲ Single, continuous or buffered display

Value for money ★★★★★

AMIGA

● DIGI VIEW GOLD

HB MARKETING • 0895 444433
£130

This minute digitiser plugs into the parallel port and comes with an accompanying colour wheel which attaches to a video camera for colour grabbing individual RGB signals. Grey scale digitising is also supported and both results are extremely impressive. Saturation, brightness and sharpness can all be controlled.

▲ Very impressive in HAM mode
▲ Features overscan, extra half-brite and line art support

▼ Needs 1Mb
▼ Lengthy scan times

Value for money ★★★★

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▲ Good quality digitisation
▲ Can digitise 4096 colours

▼ Slow scan rate
▼ No frame buffer

Value for money ★★★★

● DIGI-PIC
PRECISION SOFTWARE • 01-330 7166
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Up to 16 grey scale levels are supported with this impressive hardware which also includes a colour wheel for RGB scanning. Intuition pull-down menus afford easy operation and access to all functions leaving the main screen uncluttered. Software controls include quantisation,contrast, and edge

▲ Fast operation
▲ Supports up to 32 colours

▼ Low-res only

Value for money ★★★

ST

● TURBO-DIZER
SOFTWARE EXPRESS • 021-328 3585
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Camera, video recorder or TV pictures can be digitised via the plug-card as colour or grey scale images which can be treated for brightness and contrast. Images can be saved to disc as *Neochrome*, *Degas* or *Art Director* format files for subsequent manipulation. Only high- res pictures can be saved for DTP use.

▲ Good range of control for the price
▲ Excellent results in hi-res mode

▼ Slow scan time
▼ Animation only possible in lo-res

Value for money ★★★★

● SAM DIGITISER
START SYSTEMS • 0304 369364
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An excellent real-time frame grabber for capturing images in 16 colour lo-res format. Entire sequences can be saved – 10 on a 520, 24 on a1040, 52 on a Mega ST2 – and animations run at variable speed in forward or reverse.

▲ Blur-free, sharp frame capture ability
▲ Good animation and control

▼ Only operates in lo-res mode

Value for money ★★★

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▲ Good level of sampling
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Value for money ★★★★★

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● VIDEO DIGITISER
ELECTRIC STUDIO • 0462 675666
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Plugging into the expansion port and accepting either camera or recorder input. The resultant image can be used in any DTP package

▲ Auto contrast control

▼ Quality not as good as scan

Value for money ★★★

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● BEEB VIDEO DIGITISER
WATFORD • 0923 37774
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▲ Unit can be driven from BASIC

Value for money ★★★★

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ATARI 800XL with Omnimon,1050 drive with hyper upgrade, Digitiser, Touch Tablet, £60 of books, games, utils., demos, the lot £175 o.n.o. Phone 0202 632004 between 5pm - 7pm.

OLIVETTI PCi fully IBM compatible twin 720K drives, mono monitor, including assorted software as new, swap for Amiga or sell to first sensible offer. (Kids forced decision!) Contact Steve, 091 5870610 (Wearside).

SINCLAIR QL, Wordprocessor, Database, Spreadsheet, Graphics software, Spellchecker, Scrabble, plus many manuals and books. NLQ Printer + ribbons. £150 o.n.o. (04465) 3826 (S. Wales).

AMSTRAD CPC464 for sale, monitor, 120 games, Cheetah joystick, worth £660 sell for £350. Tel: 0582 872514. A. Maggs, Yew Tree Cottage, Whipsnade, Beds, LU6 2LG.

AMSTRAD PC1640MM, enhanced keyboard, 40Mb hard disk, parts only 2 months old, hardly used, only £699, Bracknell (0344) 425766 (Steve).

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AMIGA originals for sale, Switchblade, Power Drift, Chase H.Q., Hard Drivin, Sword of Sodan, £10 each. Contact Steven Bedford, 4 Breakspear, Stevenage, Herts, SG2 9SG.

AMSTRAD 6128 colour monitor, Amstrad printer, matching covers, desk, joystick, trackball mouse, lightpen manual, blank discs, some games, Artball graphics, worth £1,000 take £600. 06973 31759.

CASE 4596 9600 baud modem £400 Dacom DSL2123GT 1200 baud modem £100. Contact Graeme (0908) 661137.

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SPECTRUM +3 games for sale: Batman, Operation Thunderbolt, Chase H.Q., Operation Wolf, Robocop, The Duel, Hard Drivin', £5 each, £30 the lot. Tel: (0602) 399063.

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SPECTRUM 128 for sale with leads, with £600 of software + mags, bargain at £80. Phone Ross on Flax Bourton (027583) 3579 (Near Bristol).

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AMIGA books, hardware referenc, systems programming guide, any others wanted. Phone 0243 827430 evenings.

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WANTED Hard disc drive for Atari ST. Cash waiting, telephone (0924) 891632, Wakefield, W. Yorks.

AMIGA Ham Radio software required, write to: Gordon Keenan, 61 Glenfinnan Road, Glasgow, G20 8JG. (Anything to do with RTTY, Morse, Packet etc.)

WANTED. OCP Art Studio for C64. Disk preferred but cassette acceptable, sensible price. Please ring 0889 577171.

I have got two Datasettes and I need to backup my taped software, has anybody got a connection, so that I can? Danny 01-208 1894.

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WANTED: Eagle III software/hardware & manuals, I have nothing at all for it, please help. Write to: M. Saint, 83-85 Ramsbottom Road, Hawkshaw, Bury, BL8 4JS.

● HELP WANTED

PROBLEM New Zealand Story. When Tiki the Kiwi is swallowed by the whale, how do you destroy it from inside to escape? Stamp refunded. Ben Colkett, 23 Wallace Avenue, Worthing, West Sussex BN11 5QY.

WANTED information/instructions for LMT SP1.1 disk and printer Interface for Spectrum. Contact Tom Stanton, 20 Lycett Road, Dringhouses, York YO2 2NB. Tel: 0904 707568.

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SHAREWARE Automors seek world-wide exposure BBS's, Clubs, Distributors: Send Newsletter or Letterhead to Peter Raeth, 5935 Hickam Drive, Dayton, Ohio or phone 0101-45431-1561-USA (PC/Clone only).

● PEN PALS

AMIGA contacts wanted, send disks to: Gunnlaugur, Heidarlundur 7A, 600 Akureyri, Iceland.

AMIGA contacts wanted, no lamers, 100 per cent reply. Write to Marc, 1 Verdayne Ave, Shirley, Croydon, Surrey CR0 8TU.

AMIGA contacts wanted, to swap latest stuff. Send lists to Paul Convery, 139 Seal Road, Bramhall, Stockport, Cheshire SK7 2LL.

AMIGA contact wanted, 100 per cent reply, all welcome. Write to Anticon, 28 Bushey Road, Plaiston, London, E13 9EN or phone 01-472-2673 after 7pm.

● MINI TIPS

MINI TIPS for New Zealand Story. I reckon that if you hold down the CTRL and LEFT-ARROW you can advance through the levels but you must still fight the end of level baddy. Good eh?

● USER GROUPS

AMIGA contacts wanted. For the latest stuff send list and disks to 26 Faulcon Bridge Close, Crabtree Farm Estate, Bulwell, Nottingham, NG6 8DW. No Lamers.

AMIGA contact wanted, 100 per cent reply. Send lists or disks to Ray, 413 Gleneagles Ave, Rushey Mead Estate, Leicester LE4 7YJ.

AMIGA user group starting soon! If you are interested please write to: Daniel, 86 Dawns Road, Folkestone, Kent CT19 5PT enclose SAE and tell me about you.

AMIGA user learning Machine language with Devpac, interested in forming a beginners group. Write to Mark, 1 Cromwell Road, Southampton, Hants SO1 2JH. All letters answered.

WOKING users: want to start a group with regular meetings etc? If so, 'phone David on Woking 763223 for more information.

ST contacts wanted if into games and utilities 100 per cent reply. Write to Ian Fowler, 35 Watergate Estate, Tallaght, Dublin 24, Ireland. Hi to Barry Nelson.

AMIGA doctor, any probs, call me 01-555 3550 or write to 94 Abbey Road, Stratford, London.

AMIGA contacts & coders needed. Write to: D.F.U.K., March House, 2 Dells Lane, Ashley Green, Chesham, Bucks HP5 3PN. No beginners or lamers please. Disks get priority!

AMIGA/ATARI ST contact wanted world wide please, please! Send your list/disk to Paul, 17 Beech Park, Viewmount, Waterford, Ireland. NOW!

AMIGA owner wishes to contact others, no lamers please, 24hr turnaround. Write to Wayne, 24 Torrington Road, Ilanrumney, Cardiff. Yo, Cosy, Jon, Ruthie, Mart, Lou!!

AMIGA contacts wanted to swap hints. Write to Carretie Roland, Rue de Piscop, Res du Village, St Brice, S/S Foret 95350 France. 100 per cent next day reply, send your disk or list.

64 (Tape) not disk – users club about to start up – going global soon. Trade, Demos, comps: For details S.A.E. to: D. Mason, Ethorpe Hotel, Gerrards Cross, Bucks, SL9 8HY.

ADVENTURE enthusiast seeks contacts to exchange ideas etc for ST and PC games. Mr S Lucas, 47 Longcroft Lane, Cheadle Hulme, Cheshire.

AMIGA Contacts wanted to start FREE beginners club in the south to swap games, cheats, tips etc. Please contact David after school on 0425 279835.

AMIGA contacts wanted 100% reply fast and reliable. All welcome write to: Steve, 4 Stopgate Lane, Aintree, Liverpool L9 6AP.

AMIGA contacts wanted all around the world to swap latest stuff. Write to: Tariq Al-Ali, PO Box 66957, 43760 Bayan, Kuwait. 100% reply. Hi Mad M.

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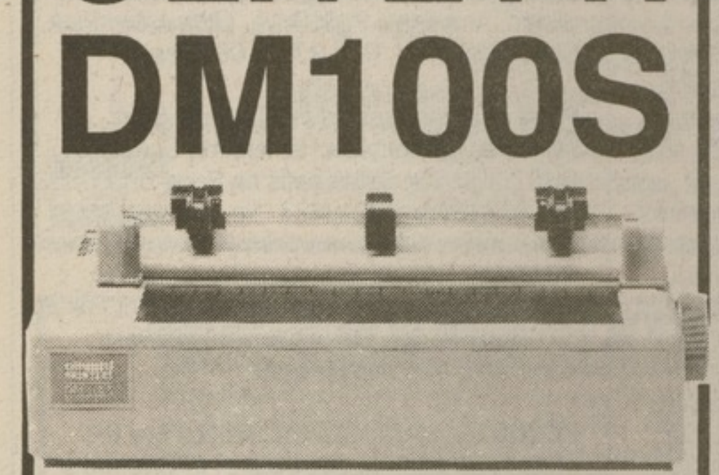
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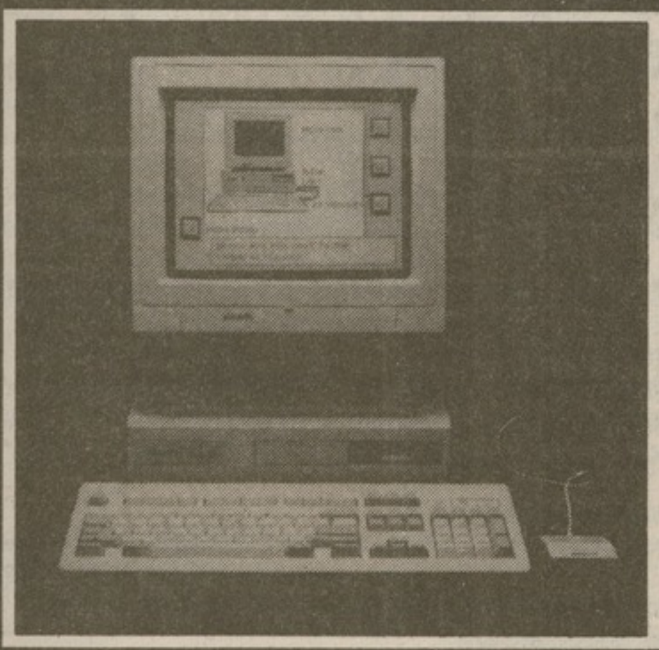
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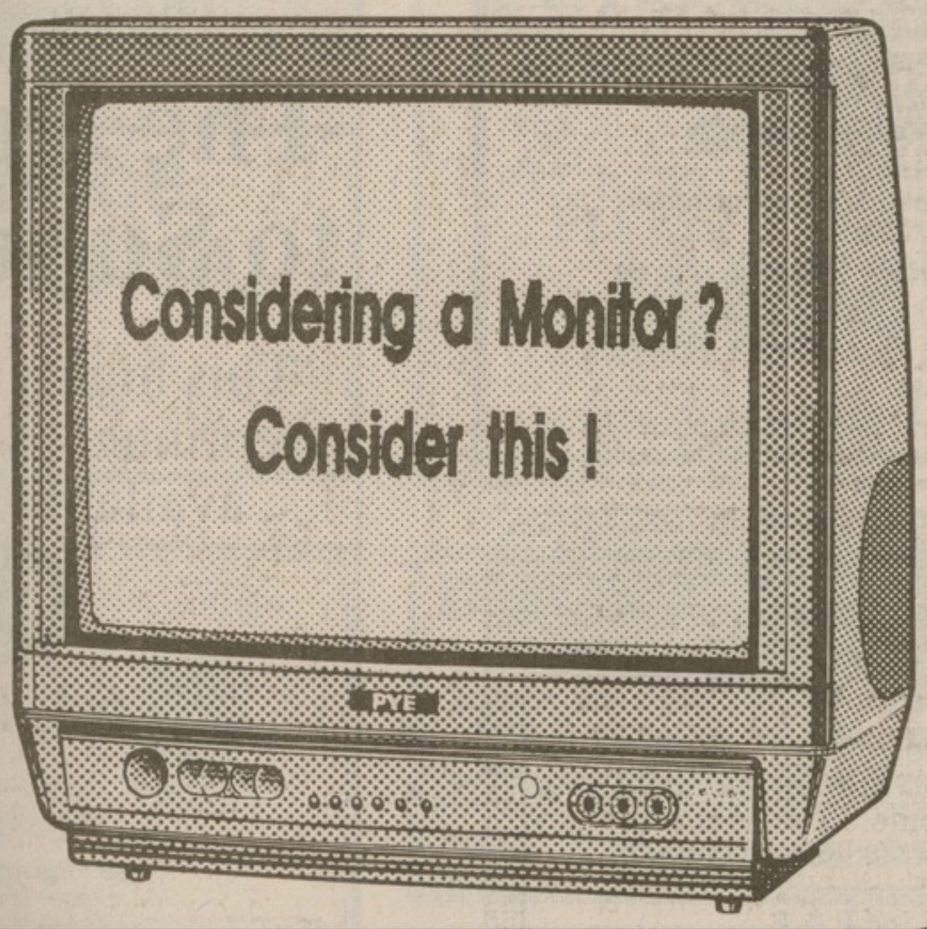
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AMIGA contacts wanted. User Group, demo's etc. Cheats disks. List sent. Send S.A.E. to Steve Hayward, 29 Effra Road, London SW2 1BY. 100%.

AMIGA contacts wanted: Write to Danny, 5 Beckside North, Beverley, North Humberside HU17 0PR. Send disk or letter, 100% reply posted next day. Also Amiga cheats disk for sale £2 each.

AMIGA newcomer, contacts wanted, usual stuff – swap games, tips etc. Where do I get cheap disks? Write to Kev: 20 Cypress Avenue, Ellesmere Port, Cheshire LG6 2UU.

AMIGA owners in Nottinghamshire! Please mail details to help create a local user network. S.A.E appreciated. Replies guaranteed. Be patient! Mansfield A500, 4 Poplar Street, Mansfield Woodhouse, Mansfield, Notts NG19 9LB.

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AMIGA users contact Andy at 80 Central Drive, B'Pool, Lancs, FY1 5QD, England to get demos, utils, tips for the Amiga!!!

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ANY computer users who use Klaver Music Notation interested in forming/joining a user group; ring Mike on 01 520 5223.

BBC contacts wanted to exchange software, hints, tips etc. All letters replied to, write to K. Scotney, 17 Cromer Avenue, Burley, Lancs BB10 3HA.

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DISK magazine for Amiga freaks. Send Submission on disk to: Arthur Wyatt, 68 Shefford Road, Meppershall, Shefford, Beds. Submission disks get returned with magazine on, blanks returned as blanks.

DOES anyone know of an ST user club in the Wirral/Merseyside area that is open to membership? Please ring 051 678 8519.

DOES anyone know of an ST user group in the Reading / Wokingham area? If so please phone: Matthew by Tel: 0734 788085.

FAST Amiga contacts wanted, repeat fast! Send Discs or Letters to: Andy, 35 St Annes Drive, Aylestone, Leicester LE2 8HU.

GWYNEDD, N. WALES. ST User Group. I want to get in touch with all local ST Users to form a new group. Contact S. Rammerling, Clogwyn Plas Gwyn, Pwllheli, Gwynedd, N. Wales, LLS 36UA.

HYPERPAD – interested in forming a user group? SAE to Dave Langstaff, 78 Harrison Road, Swaythling, Southampton, SD2 37J.

IF You want to spread your groups in Asia. Send your latest + your demos to: Tariq, P.O. Box 3581 Safat, 13036, Kuwait. 100% reply, Amiga Only. Also will swap spot.

INTERESTED in joining a Kick Off League in London? With trophies for winners? Contact Ray at 30 Windsor Crescent, Wembley Park, Middlesex, HA9 9AW or ring 01 904 0555 between 6pm-11pm.

IS there a Clipper/DBase 3+ User Group in London? I will be grateful for any details. Guy Ellis, 23 Sussex St., Pimlico, London, SW1V 4RR.

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KENT youth computer group at the Bowen Youth Centre, Kingsnorth Road, Ashford, Kent. All makes of computer. Write to Kris for details.

LAMER? Want to swap software, tips, demos and form a Lamers against Lamers Society? Then contact, Faisal Patel, 73 Track Road, Batley, W. Yorks, WF17 7AB.

LIST the low income ST User Group for students and the unemployed send two blank disks to Marcus, 9 Days Green, Chapel Street Mary, Ipswich, Suffolk IP9 2HZ for details.

NINTENDO contacts wanted for swaps and setting up of User Group! Write to: Ashley Middleton, Amberley, Park Drive, Little Aston Park, Sutton Coldfield, B74 27A, 100% reply.

PCW Users Interested in P.D. send S.A.E. to: PCW-File, 18 Sunbrow,Haslemere, Surrey GU27 2QP. The PCW-File is on Boog BBS 0252 626233, 24hrs, V21/V23. No Fees.

READ this now! Amiga contacts wanted to start a group or just swap stuff. Contact Phil at 52 Altofts Lodge, Drive Normanton, West Yorks WF6 2LD. No lamers!!!

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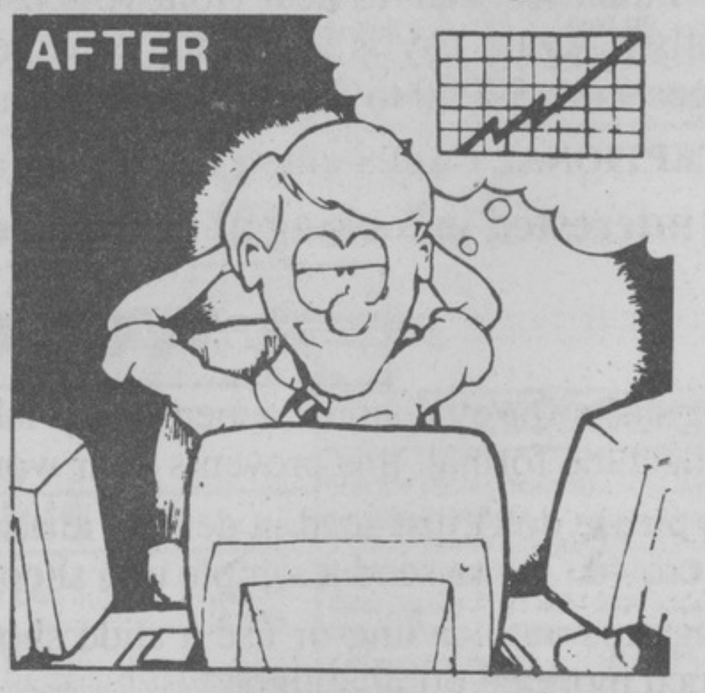
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ST contacts wanted if into Agtomation or any other, then write or phone 110% reply, almost. Lee Edwards, 24 Topllan Road, Glan Conwy Clwyd, LL28 5NP tel: 0492 580447.

ST user: Help!, I'm Australian and have just bought an ST (used to own a C64 in Oz) Anyway, I am looking for good contacts and also anyone in Bradford interested in starting a users group. Contact David Marshall, 5 Highfield Road, Five Lane Ends, Bradford, W.Yorks.

TAKE advantage of the free helpline service, go ahead and get in touch with some of the other C-64 users, etc.... Join 'Crystal Unicorn'. No fee's!!! Adam, 'Redways', Harps Hall Road, West Walton, Wisbech, Cambs. PE14 7DJ.

THE Computer Information Club. A Club for PCW, PC, CPC, Spec+ and Atari, producing a Newsletter with hints, tips and discover software. Contact The Editor, 345 Western Way, Letchworth, Herts.

TI99/4A User Group. Quarterly Mag, software Libraries. Membership Secretary: Peter Walker, 24 Bacons Drive, Cuffley, Herts EN6 4DU. TI99/4A lives on yet!!

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SPEC users write to me to swap ideas and games. I'm 14 years old. Contact Mark Nunn, 7 Hillway Linton, Cambridge, CB1 6JE.

AMIGA contacts, male/ female, wanted. Into Karate (2nd Dan) Looking for decent pictures for demo's. Send to "Sensei" Brian, 20 Mather Avenue, Weston Point, Runcorn, WA7 4JJ. 100% Reply.

ST contacts wanted, anyone interested in art, games, STOS etc. Write to 1 Five Oaks, Baildon, Bradford, West Yorkshire BD17 5DF.

AMIGA programmers, I need source code for MC Sprites, will pay a fiver for the best one. 50 Victoria Avenue, Sleaford, Lincolnshire NG39 7LN.

ATTENTION all PC engine Freaks, write to me and we will exchange tips, views and have a good old natter about this wonderful machine. S Thompson, 114 Caldwell Road, Nuneaton, Warks CV11 4QF.

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AMIGA contacts wanted, especially around Harrogate area. Write to Phantasm, Rohan Cottage, Back Lane, Aldborough, Boroughbridge YO5 9EX. Beginners welcome, but all must be quick.

AMIGA contacts wanted for software and demo swaps. 100 per cent reply. Write to: Adrian, 62 Caldr, Stoneydelph, Tamworth, Staffs B77 4BS. I only accept the best.

ST contacts wanted. Up to 1Mb, 100 per cent reply D Chadwick, 73 Myers Gardens, Sutton, St Helens, Merseyside WA9 3YX. Also Hewlett Packard 7631B Printer sell or swap. Offers 0744 818674.

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AMIGA contacts wanted, 100 per cent reply. Write to Andy, 27 Rennie Grove, Quinton, B'ham B32 2SE. Hi to (Mr Disks Andy) Scott, Andy, will Zippy excel UK.

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SEEK OUT THE STANDARDS

In the latest episode of our series on PC essentials, Mike Hardaker looks at software, and what standards to look for...

So far this series has looked mainly at the hardware which makes up a PC system. This is only part of the whole story. One of the old saws of the data processing industry is that any computer system consists of four things: hardware, software, data and people. You provide the last two, but the first two must be bought.

Without software, a computer is a very boring machine. It sits there, whirs and costs money. It is software which translates the computer's inherent ability to do fast sums into the more interesting ability to do something useful. People buy computers because they want to do something better than they currently do it, or because they want to do something which they can't do without a computer.

Software is the element which allows them to do this.

The sections of this series which have dealt with hardware have stressed the importance of standards. It is the high degree of standardisation within the IBM-compatible world which has led to the IBM PC's pre-eminence. This is as true with software as it is with hardware. Hardware compatibility means I can plug my printer into your PC. Software compatibility allows you to use the data I have created on my PC, or for you to use one program because it has elements in common with another. In day-to-day use, this is the most useful feature the PC offers.

OPERATING SYSTEMS

The operating system is the interface between the computer's hardware and the application program (the software which actually does something useful). As far as the IBM-compatible PC is concerned, there is one standard operating system – MS-DOS (short for Microsoft Disk Operating System). Others have tried and failed (such as DOS Plus and CPM/86) and others may yet usurp MS-DOS (like OS/2 or Unix) but as things stand, MS-DOS is the standard.

Nearly all PC software assumes you have MS-DOS. If you haven't, make sure your operating system (Digital Research's DR-DOS, say) promises total compatibility with the original.

APPLICATIONS SOFTWARE

This is the software which actually does comprehensible things. It turns your machine into a useful tool rather than a technological toy. The functions an application program can provide are conventionally split into certain key categories. The edges between these categories are becoming somewhat blurred, but they do describe the functional differences quite clearly. ➤



• The software you run on your PC is what makes it useful, so choosing the right product is vital.

WORD PROCESSING

This is probably the single most popular PC application. In simple terms, a word processor is a tool for writing things – an improved version of a typewriter. Unlike a typewriter, a word processor allows you to change a document before committing it to paper: it represents the kiss of death to re-drafting and Tippex.

Modern word processors usually include a spelling checker. This is a program-within-a-program which tells you whether you have mis-spelled a word. Make sure your software includes a UK English (rather than US English) spelling checker, otherwise your colours may end up as colors. The thesaurus is an even more recent innovation, offering synonyms for words when you cannot think of exactly the right word. If a word processor says it has a '50,000-word dictionary' this does not usually mean that it can replace the *Chambers' 20th Century* – definitions are not, as a rule, included – only spellings.

Since the late 1970s, *WordStar* has been the *de facto* standard for word processors. Although it is hideously old-fashioned in many ways, *WordStar* (or one of its clones) is to be found on very many PCs. If your word processor can produce *WordStar*-format files it is an advantage. Otherwise, the ability both to import and export plain ASCII (see separate panel) is essential.

Other standards which are commonly supported include *WordPerfect, DisplayWrite* (often referred to as RFT or IBM DCA/DIA) and Microsoft *Word*. The ability to create or understand files created in these formats can be an advantage in any word processor if you want to exchange disks with other PC users.

If you buy a non-standard word processor do not despair. The *Word for Word* program is available and translates just about anything into anything else.

DATABASES

The database is the electronic equivalent of a card index. Its big advantage is that it allows you to sort your records in any number of ways – so a card index may be arranged alphabetically and is fixed that way, but a PC database can be rearranged in date order within a few seconds.

The two main types of PC database are the 'flat file' and the 'relational'. Flat file databases really are very like manual filing systems. Relational databases, on the other hand, allow links to be set up between different files, allowing all sorts of complex data to be analysed in many ways. Relational databases are more powerful but tend to be harder to use.

There is only one real standard in databases: Ashton-Tate's *dBase,* based on that company's massive (and massively expensive) relational database. Also known as .DBF files (from their MS-DOS filenames), *dBase* files can be created and read by most serious databases. The next level down is the ever-present ASCII (see panel).

SPREADSHEETS

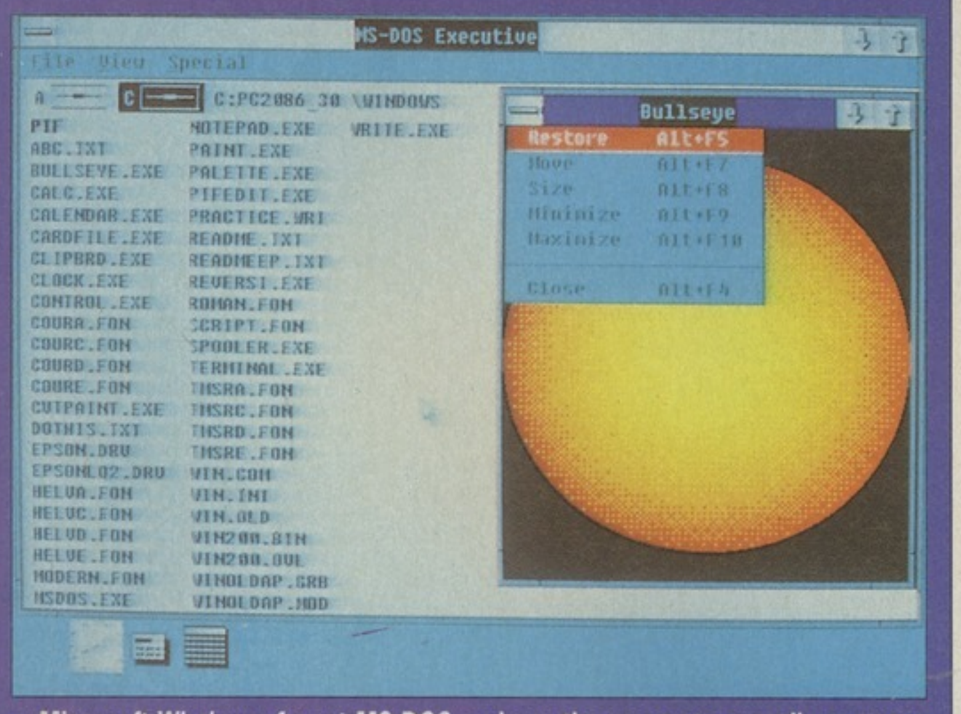
The spreadsheet was the product which really made the home micro. Essentially a grid of 'cells' made up of interconnecting rows and columns (like an old-fashioned ledger book), each of which can hold text, numbers or 'formulae', the spreadsheet is used mainly for calculation. When a spreadsheet is described as handling 'worksheets' up to 1,000 x 256 this refers to the maximum number of rows and columns it can have. The ability to change one figure and let the computer make a whole series of calculations makes the spreadsheet invaluable for 'what if' calculations.

The PC spreadsheet standard is Lotus *1-2-3*. If you want to be able to exchange spreadsheet data with other users, your spreadsheet must support *1-2-3*-type files (known as .WKS or .WK1 files).

WINDOWS AND GEM

One way out of the mish-mash of PC standards (*1-2-3* not being compatible with *dBase* or *WordStar*, for example) is to use a standard user interface. This offers common file formats and keystrokes between all types of application, with programmers writing not to MS-DOS but to a 'higher-level' interface which sits between the operating system and the application.

The first such to achieve any success was Digital Research's GEM (Graphical Environment Manager). This provided a 'friendly' interface based on pictures – icons – and the use of a mouse. Its heyday was a couple of years ago when it was provided free with the Amstrad PC1512 and PC1640. Responding to the vast sales of these machines, many software developers wrote low-cost programs which used GEM, targeted directly at the Amstrad users. Very few up-market programs chose GEM as an interface, with Xerox's *Ventura Publisher* being the striking exception. GEM has now had its day, as a result of insufficient development from DR, and very few new programs have come out which use it



• Microsoft Windows: forget MS-DOS and use the mouse to run all your programs using menus.

The young pretender is Microsoft's Windows. This also provides a common interface but is supported by many leading software houses (including Microsoft itself). Now, major word processors (*Word for Windows* and *Ami*), spreadsheets (*Excel*), databases (*Formbase*) and other products (*PageMaker* and a host of others) are available for Windows.

It looks as though the future of MS-DOS lies with Windows, as more and more programs come out for it, and it seems safe to say that a Windows application will prove a sound medium-to-long term investment – if you learn one Windows application, most others will be easy to get to grips with.



• WordStar is still a major standard in PC word processing, despite its out-dated user interface.

GRAPHICS

Many spreadsheet programs can plot the numeric data they hold as graphs and charts. Graphics programs are specialists in that area. Many are also able to produce pretty text for titles and the like. The most commonly accepted standard for business graphics programs is *Harvard Business Graphics*.

The most important element of any graphics program, however, is its ability to produce files in a format which can be understood by other programs such as desktop publishing systems. The most common formats are .PIC, .PCX and TIFF. Look for these.

The same formats are produced by drawing and painting programs such as *Paintbox, Corel Draw* and *Deluxe Paint II*. These are programs for artists which allow the PC to be used like a pencil or a palette of paints for producing pictures.

ASCII

At the most basic level, the PC stores its information in a format known as ASCII (American Standard Code for Information Interchange). If your program can import and export 'raw' ASCII, you should be able to communicate with most PC programs in some way or another. This is not a very sophisticated way of getting files in and out of software – italics and bold will be lost from word processing files, for example – but it is pretty universal.

DESKTOP PUBLISHING

The two grand-daddies of desktop publishing (DTP) are *Ventura Publisher* and *PageMaker*. These are programs creating professional-quality publications on the PC, replacing the traditional disciplines of typesetting and page layout with cut-and-paste technology. *Express* is produced using DTP.

When buying a DTP program the standard to aim for will depend on the nature of the final output file. The industry standard is PostScript, which can allow your PC to produce information understandable to commercial typesetting equipment so you can use typesetting bureaux. PostScript printers are pricey and typesetters cost the Earth, but *Freedom of the Press* allow PostScript output to be produced on a standard dot-matrix printer.

COMPUTER AIDED DESIGN

Computer-aided design (CAD) is the generic term used to describe the use of a computer to replace the draughtsman's drawing-board. The standard CAD package is the hugely powerful (and expensive)

BEST OF THE CHEAPIES

Just as genuine IBM hardware tends to cost a few bob more than its competitors, the industry-standard software is rarely cheap – often costing over £500 per package.

There are, however, many budget-priced products which can compete with all but the very best of the top-end programs.

If you want a word processor, *New Word* offers total *WordStar* compatibility at a fraction of the price. Even more functions at the budget end are offered by *Protext* and *TopCopy Plus*.

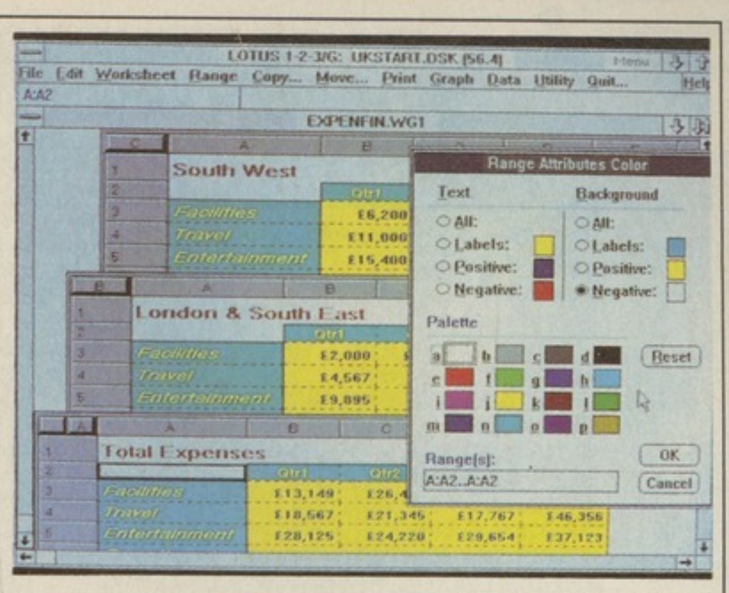
When it comes to spreadsheets, the best value comes from the shareware program *As-Easy-As*. Originally a clone of the first version of Lotus *1-2-3*, the latest version offers many additional functions – not bad for under £50. Shareware programs cost you nothing when you buy them, you pay later when you are sure the software suits your needs. Other good low-price spreadsheets (and all Lotus-compatible) include *VP Planner*, *The Twin Classic* and *Words and Figures*. If you don't like Lotus, *Cracker IV* and *Lucid 3D* are worth a shot.

Shareware also offers the pick of the budget databases with *PC File*. Now on version 4 which replaces the earlier *PC-File Plus* and *PC-File: dB*, this is a powerful flat-file database that includes compatibility with *dBASE* files.

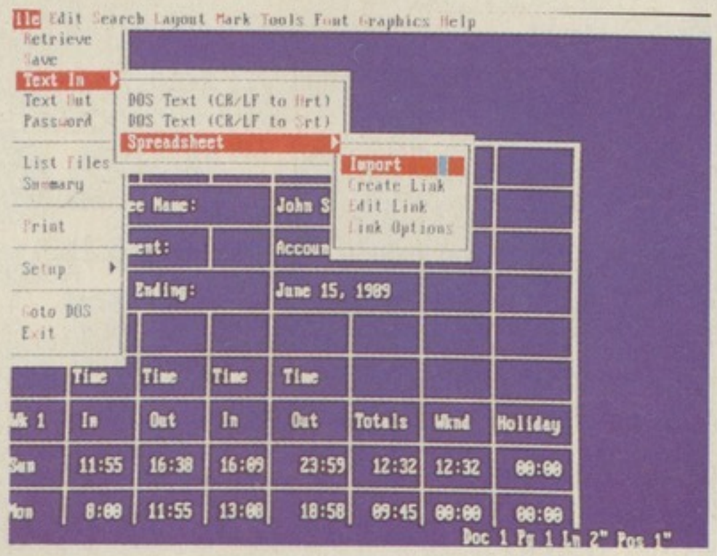
The top mid-range DTP is *Timeworks Publisher* with *Newsmaster* taking the laurels at the very bottom end.

Microsoft *Works* is not too expensive for an integrated package, but the real bargain in this area is *The Secretary Bird* for £39.95.

If you have Windows, don't forget it comes with a perfectly presentable little word processor in *Windows Write* and a handy sketching utility in *Windows Draw*.



• Lotus 1-2-3 is far and away the most popular PC spreadsheet, pictured above on its prettier OS/2 incarnation – only available to 286 and 386 owners. 1-2-3 has become such a standard that other programs not only duplicate its output file format, but even copy the command keystrokes and menuing system it uses.



• WordPerfect is the most powerful word processor, and for that reason is regarded by many as being far too complicated to actually use. The latest version, 5.1, gets around this by giving you the option of mouse-controlled menus. WordPerfect can use all the standard file formats, including 1-2-3 and the various graphics files.

AutoCAD. As far as other standards are concerned, the comments made above about graphics programs apply equally.

INTEGRATED SOFTWARE

As its name suggests, integrated software brings together elements of various different applications into one package. The most usual combination is word processor, spreadsheet and flat-file database, although utilities such as a pop-up calculator are often included.

The advantage of an integrated package is that you only have to learn one set of keystrokes to use all your main software. Also, it should be very easy to merge data from your spreadsheet into a letter, and so on. The down side is the 'Jack of all trades, master of none' problem. Some integrated packages have a good spreadsheet but a lousy database, for example.

Pick of the integrated packages are Ashton-Tate's *Framework*, which is very powerful but very complicated, and the much cheaper Microsoft *Works*, which does most things and is very easy to use.

SPECIALIST APPLICATIONS

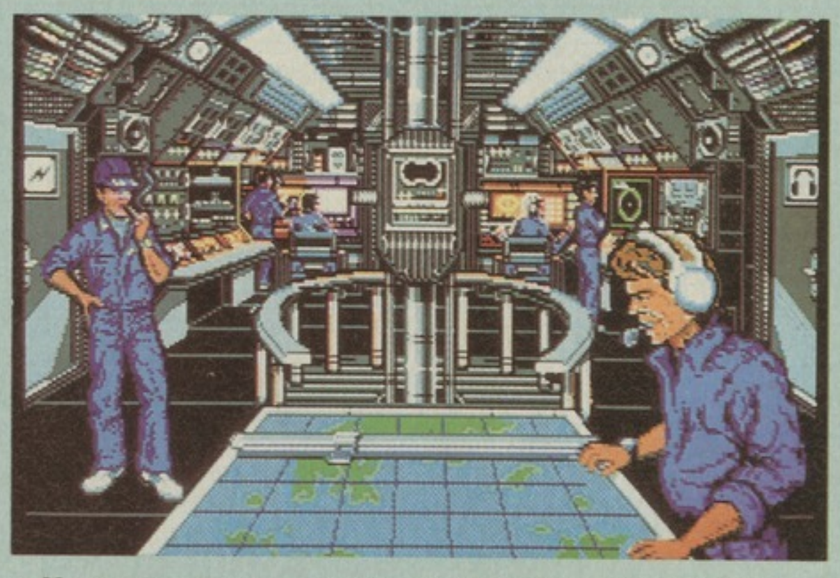
Most of the best-known categories of PC software are relevant to the majority of PC users. There are also applications for specialised jobs, ranging from accountants to hairdressers. The biggest area is accountancy, and here the standard suite of programs is the range from Sage, which offers a lot of function combined with a fierce pricing strategy. At the very top of the market, Pegasus reigns supreme.

Whatever you buy, the message remains the same – make sure your application can work with your other software, whether it's *1-2-3* or *WordStar*. ■

THE GAMES PEOPLE PLAY



• Flight simulators are among the most popular of PC games: this one is Electronic Arts' Chuck Yeager's Advanced Flight Trainer.



• Many games don't take advantage of the top video standards – 688 Attack Sub is one of the few that use VGA effectively.



• Golf is another PC speciality, although Zany Golf, *above, takes a rather unorthodox approach.*



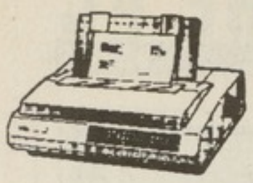
• Graphics-based adventures offer a step up from traditional text games. This one is Iron Lord.

The PC was not designed as a games machine, and will never come close to the Amiga and ST in that category. Indeed it is only recently that the PC has stepped out of the shadow of the 8-bit machines and begun to be a creditable entertainment engine.

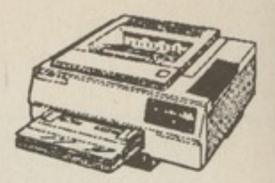
A major problem with PC gaming is the hardware it needs.

Colour is essential for gamers; a Hercules board will restrict you to text adventures – forget software CGA emulators, they are just not up to the job. CGA graphics are OK for games, but pity the user who wants to do serious work as well. So you are looking at EGA or VGA graphics with the accompanying expensive monitor. Add to that a games board so you can fit a joystick, and the £25-£30 per game, and PC gaming becomes a very expensive hobby.

Before you buy a game, make sure it will run on your system. The hardware requirements in terms of memory, graphics and add-on boards are normally clearly stated on the pack.



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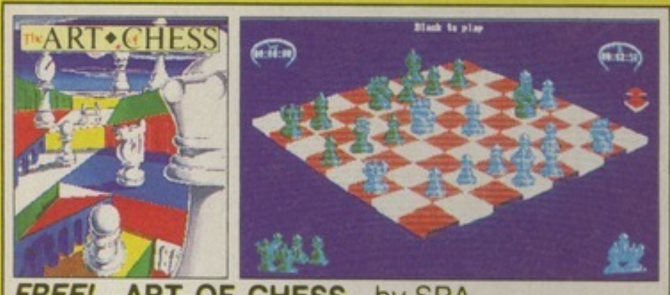
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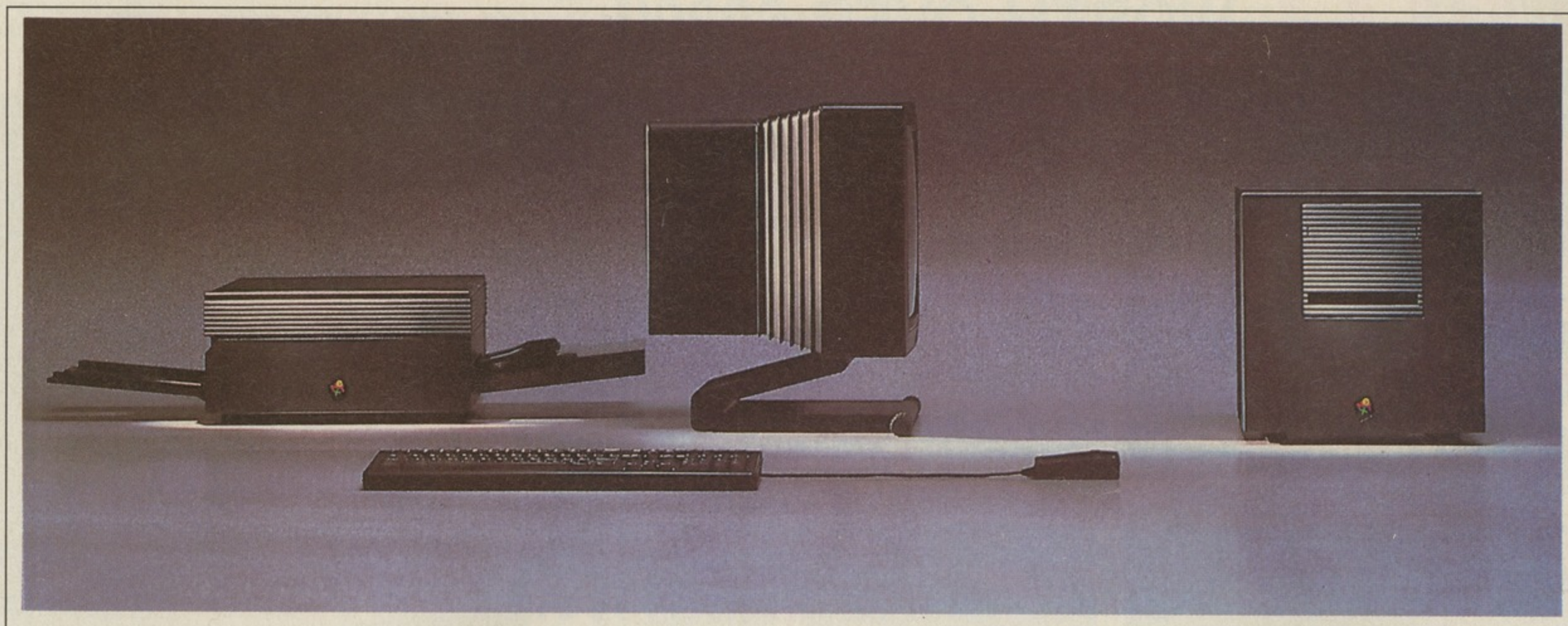
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IT'S THE BLACKINTOSH

Some 16 months after its launch in the States, Steve Jobs' long-awaited NeXT machine has finally hit our shores. Andy Storer previews the matt black beauty...

Described by its mentor as a 'university on the desktop' and 'a partner in thought', the NeXT certainly looks like it packs a solid punch. Beneath its highly-stylised exterior lies the desktop status symbol of the Nineties – a personal workstation running a multi-user version of Unix with a graphical interface called NextStep.

Workstations are the fastest growing sector in the computer market. With sales set to quadruple to around £5 billion in Europe alone in the next four years, former Apple founder Jobs clearly wants a piece of the action. With NeXT pitched at around £7,000, it has the both the power and price-point to take on the likes of Sun, DEC and Hewlett-Packard in the big league. Whether NeXT has the clout to attract the major software developers is less clear – Microsoft has already declared the machine a no-go area since it's a direct threat to OS/2. But whatever the machine's future in a blossoming but wary marketplace, its position as a pointer to a new generation of hardware performance is unquestioned.

The base-level configuration consists of a 15-inch-high black cube containing three 32-bit processors, 8Mb of RAM expandable to 16Mb and a 256Mb rewriteable optical drive. Along with a keyboard, mouse and optional 400DPI laser printer, a free-standing 17-inch high-resolution monochrome monitor completes the picture. So there's no colour supported, no built-in floppy drive and no fast 68040 chip to be seen. Yet. Instead, the one million pixel 'Mega Pixel' display offers extremely good depth and clarity, data can be imported via an Ethernet port and the 32-bit Motorolas hurry along at a respectable 25MHz.

NeXT POWER

Jobs also describes his baby as 'a mainframe on two chips' – a not unreasonable claim since the architecture employed doesn't follow the traditional form of requiring the central processor to manage every task it's called to attend. With mainframes, a host of separate input/output processors each have a direct channel to memory.

So, the NeXT machine has utilised very large scale integration (VLSI) to shrink mainframe architecture onto two chips. One contains 12 input/output processors, the other the circuitry to manage the mass storage. These two custom chips sit on a 11-inch board along with the three 25MHz Motorola chips – a 68030 central processing unit, a 68882 floating point unit and, for the first time on a desktop computer, a 56001 full 32-bit chip dedicated to the digital signal processing of CD-quality sound.

Display and printer ports open up the machine to the outside world, along with a Mac-compatible SCSI port for hard-disks and scanners, a couple of Mac-compatible RS422 serial ports for disk drives, and a full 32-bit Ethernet port.

NeXT SYSTEM

A Mach Unix kernel, compatible with Unix 4.3, has been chosen as the operating system to best accommodate the dual demands of networking and multitasking, which are seen as the essential requirements of the modern computer user. But Unix is also pretty well known as being the most demanding system for users. NeXT's answer is to provide a graphical interface that places Unix's technical obscurity firmly in the background.

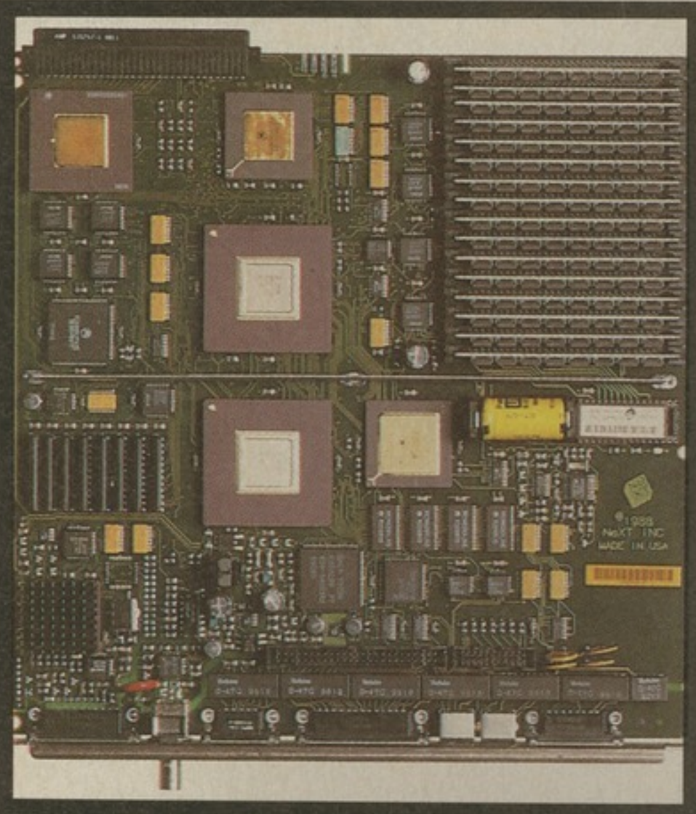
Although a command-line window remains as an option, the interface is essentially a WIMPS environment with all Unix commands accessible through a mouse. The multiple window set-up allows separate applications to run simultaneously in view. Commonly used applications can be consigned to a icon strip known as the 'dock' which remains in view throughout the proceedings. A user can launch or transfer to another application simply by clicking on its ever-present icon. The beloved wastebasket has also been updated – it's now a black hole!

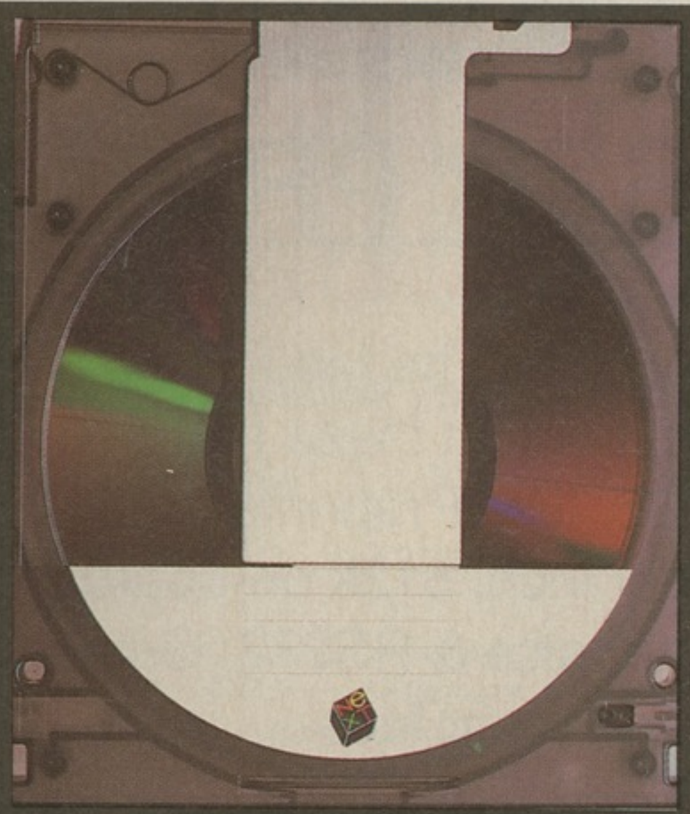


NeXT STORAGE

The 3,000 revolutions per minute, rewriteable optical disk drive fitted as standard runs 256Mb removable disks, and as such presents a vision of computing in the future. Gone will be the days of shelves of disks – here you have just one disk that's likely to hold everything you're ever likely to need. Although NeXT is the first computer to come with an eraseable optical drive built-in, there's still the option of fitting a conventional hard-drive, thus allowing even greater internal storage of up to one gigabyte.

Obviously these kinds of storage capabilities open up exciting avenues for use. Here the digital signal processor, capable of full 16-bit stereo sampling at 44.1MHz, comes to the fore. High-quality but disk-intensive sound samples present no problem. For a start, networked electronic mail or fax could be replaced by voice messaging, documents could be voice-annotated, or database material complemented with ambient sound and special effects. Also, by building the DSP chip into the machine's basic architecture, the way is open for speech recognition software.



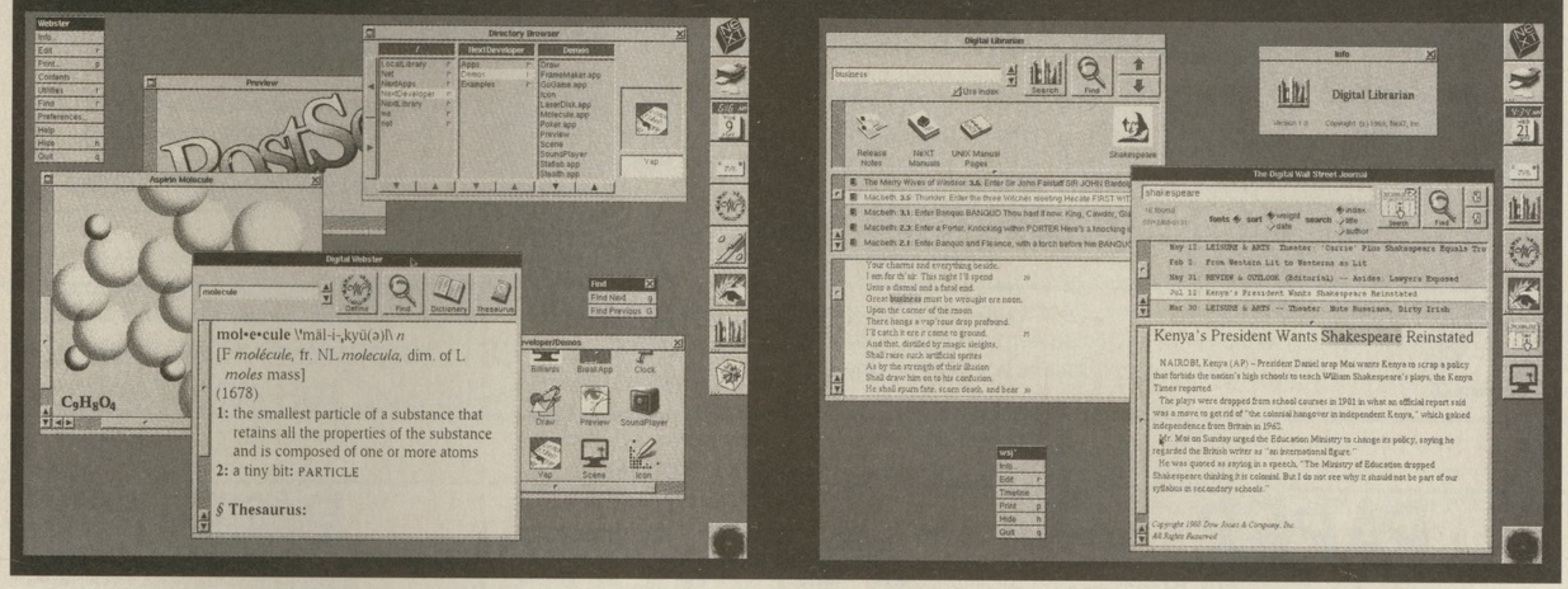


• Top left: The two custom 'mainframe' chips reside on a single board consisting of only 45 integrated circuits.

• Top right: reliable and cost-effective, the rewriteable optical disk is just one of the innovative features of NeXT.

• Below left: The multi-window desktop environment – ideal for a multi-tasking machine.

• Below right: Hypertext search and cataloging functions come built-in with the huge reference suite of the Digital Library.



NeXT APPLICATIONS

Bundled with every machine is *Digital Library*. This suite of software comprises *Webster's Dictionary* and *Thesaurus*, the *Oxford Dictionary of Quotations* and the complete works of that guy who used to live in Stratford. All these are contained on a single optical disk and linked by the cataloging and searching software known as the *Digital Librarian*. This 'agent' also allows you to create your own books by pulling data from other sources and cross-referencing the material via hypertext routines.

Applications bundled with NeXT include the *Write Now* word-processor, the *Sybase* SQL database, and C and Lisp languages. In the pipeline are Informix's graphic spreadsheet *Wingz*, Media Logic's *Artisan* graphics program, and perhaps most importantly, Cayman Systems' *GatorBox* – a gateway to link the NeXT to the Mac and vice versa – and DaynaFILE – an external disk drive that can read/write to Unix, IBM and Mac disks. In addition, Ashton-Tate is lining up *dBase*, Lotus its *1-2-3* and Aldus its *PageMaker*.

NeXT OUTPUT

The flat screen, 17-inch monitor refreshes at 68Hz and displays 1120 x 832 pixels – which translated to 92 dots per inch. Black, white and two levels of grey are supported, making the resulting images reminiscent of high-quality etchings. The 400DPI laser printer knocks out eight pages per minute and comes with a software-selectable draft mode – 300DPI – the current industry high-resolution standard!

But the real innovation is in the incorporation of Display PostScript. The PostScript language is used by the best laser printers to generate their output, but the computers that drive them do not. What Jobs and his team have done is to put the screen's display in PostScript form, so that what a user sees on the monitor is a more accurate representation of the subsequent print-out.

The difference between a screen display of 92DPI and printer output of 400DPI remains a gulf, but it's better than the standard screen display of a Mac at 72DPI. The NeXT deals with the PostScript language itself, making the printer considerably cheaper than rival models.

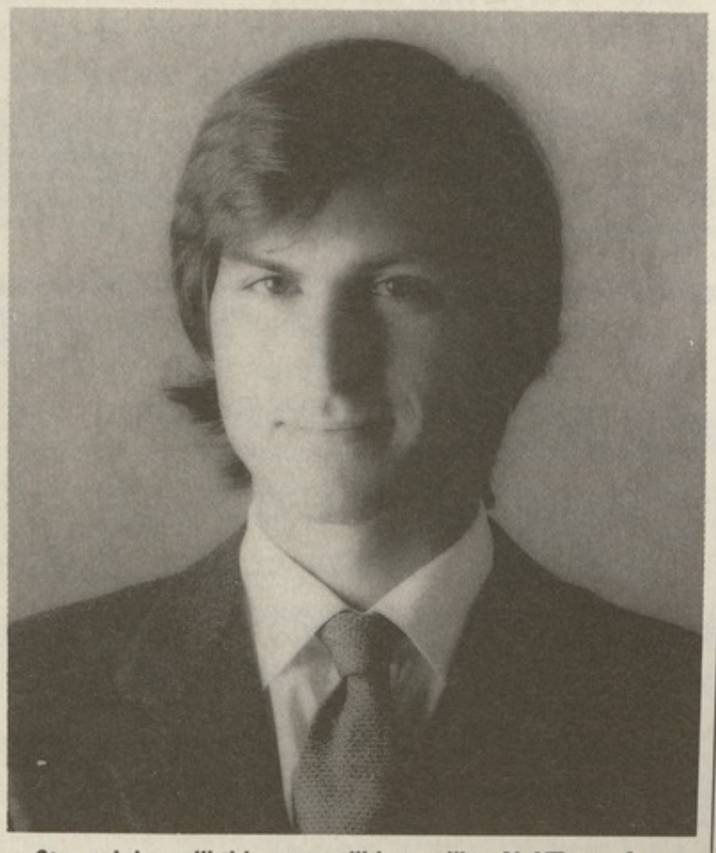
NeXT BEST?

There's no denying that the NeXT incorporates some excellent future-proof features. It's also making sure it's firmly geared to the present by bringing in Macintosh and MS-DOS compatibility. But over and above the radical architecture, the graphical Unix front-end and the Display PostScript screen, lies the real key to the system's guaranteed success. The presence of mass storage, networking and multi-tasking combine to position the machine as a powerful self-contained unit that can draw on its innovations to present power-users with a low-cost, high-specification workstation.

Anyone who's used a Mac, or a PC running under Windows, will feel instantly at home – it has all the common features you expect from a friendly interface with all the dream benefits from true multi-tasking and massive storage. With colour capability, NeXT would be an instant hit in the graphics workstation league. In the meantime, it may have to remain content with being taken up by the Unix aficionados of academia rather than the MS-DOS corporates.

Clearly, the quality of the marketing drive established by the machine's distributors over here, Businessland, will count for a great deal. But simply on the level of computing style it's leagues ahead – and in the MD's office a certain style goes a lot further than mere functionality.

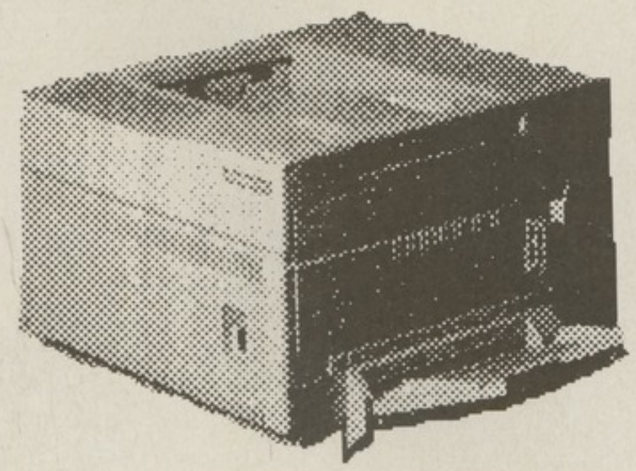
In the long run though it will be down to Steve Jobs convincing the major league software developers to get behind the machine. He pulled it off with Microsoft in getting the Mac off the ground. This time though, Microsoft's Bill Gates isn't about to play ball. Let's hope someone does – it's a machine that deserves to succeed. ■



• Steve Jobs: will this man still be smiling NeXT year?

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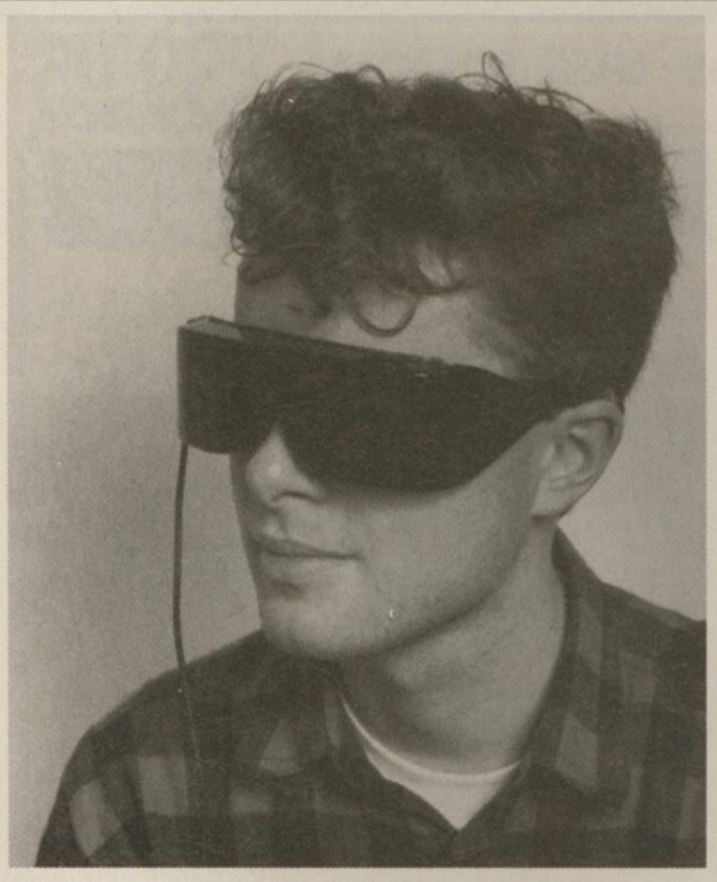
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SHADY DEALS

Three-dimensional imaging has become something of a joke in the cinema, but could it catch on in the computer world? Damien Noonan is the man in the big glasses...



• Sega's 3D glasses use LCD shutters to allow each eye to see only the image intended for it.

There is now a commonly-held belief among scientists that there may be as many as 10 dimensions of space, but for most of us the good old-fashioned three is quite enough to be going on with.

Artists who want to make an image of the three-dimensional world around us have practised two basic methods for thousands of years: they can either draw or paint a flat representation – a picture – or they can mould a three-dimensional, solid one – a model or sculpture. Sadly, the scientific advances that brought us photography, moving pictures, television and finally computers have failed to produce a credible three-dimensional imaging system. It's a choice between holograms or the plain old flat screen.

The motivation of 'realism' is a strong one in computing. So far, a number of very complex mathematical tricks have managed to produce imitations of 3D represented on a flat screen – vector graphics, filled 3D, ray-tracing. Around the world, scientists are beavering away to produce the holographic television displays dreamt of by sci-fi fans. Sooner or later they will succeed, and when they do computer displays will be transformed. But until they do, we have to be content with cheating.

TRICK OF THE LIGHT

The tradition of cheating is a long one, almost as old as photography itself. Back in Victorian times, an age that constantly marvelled at science, the stereoscopic camera was quite a hit. Effectively two cameras bolted together side by side, this gadget produced two almost-identical images of, for example, popular tourist sights. These images could then be put into a binocular-like viewer, one image for each eye, and since they were slightly offset in exactly the same way our eyes are, a reasonable impression of depth was produced.

The post-war film industry looked to revive its fortunes by wowing audiences with technology and many attempts at 3D movies were made. Generally these were of the most primitive form: black-and white film was shot with two slightly off-set cameras, one version coloured red and the other green, and the one colour was superimposed over the othe. Movie-goers were given glasses, one lens coloured red, the other green. The green lens filtered out the red picture and the red lens filtered out the green, leaving the viewer with the impression of an image for each eye, one slightly offset from the other.

The fairly unimpressive 3D effect that resulted was used to spice up third-rate horror movies, usually by lobbing knives, spiders or other projectiles 'out' of the screen 'towards' the audience. The experiment has been revived many times, most notably for some experimental programming by ITV in the mid-Eighties, when cardboard-and-plastic red-green specs were given away on the cover of the *TV Times*.

Perhaps the last wave of bespectacled cinema trickery came in the early Eighties, when *Jaws 3D* made quite an impact on audiences. Rather than using a colour split, this film divided its stereo images with polarised light. Usefully, if you pass light through a polarising lens it will not pass through another polarising lens which has been turned on its side. *Jaws 3D* viewers were given glasses with one vertical lens and one horizontal and the image projected on screen was composed of two similar polarised images: so again, each eye had its own image and a stereoscopic 3D effect was produced.

TRICKS OF THE TRADE

The computing trade has not forgotten the tricks of its predecessors. Most basic of these is the colour-split, but this has always been a bit of a gimmick. In March 1989 software house Elite produced a bizarre game called *Wanderer* which, apart from a strange plot involving an interplanetary game of poker in which the stakes were cats, boasted a colour-split 3D effect. Two images, one red and one blue, were slightly offset on screen and a pair of red-blue glasses were supplied. Frankly, the 3D effect was almost worthless and did nothing to make this a memorable game.

In the arcades, meanwhile, a racing game called *Continental Circus* was trying to make a splash with a different approach to 3D. Bolted to the front of the machine was a large pair of glasses through which the punters peered while attempting to steer a racing car round a circuit. These big shades were an example of the most successful form of stereoscopic vision to date, a form in which Sega has put its faith.

BIG SHADES

The 8-bit Sega Master System has tended to set the pace for the home arcade. Among its many plug-in extras are the 3D glasses, which follow the most modern pattern. Each lens is an LCD crystal which darkens when electricity passes through it.

Again, the aim is to produce an image for each eye, so the signal which is displayed on the screen is split into two, one slightly offset from the other. Every fiftieth of a second the image on screen is replaced with a new one: but with a 3D game, the two off-set images actually take it in turns to be displayed. Without the shades it's a flickering mess: but the LCD shutters in the glasses blind first the right eye and then the left in synchrony with the display, so each eye sees only its own image.

The stereoscopic effect isn't bad and many of the most popular arcade games benefit from enhanced versions: the likes of *Zaxxon 3D, Space Harrier 3D* and *Out Run 3D*.

AND MORE BIG SHADES

Whether the 3D craze will continue in the console world is as yet a matter of speculation, but meanwhile big specs are becoming *de rigueur* with the big boys of the 16-bit world. Tales of LCD flicker-shades for the Atari ST may seem to be apocryphal, but they have been seen in use with Antic's *Cyber Studio* – more information may be gleaned from Electric Distribution on 0480 496789.

For the Amiga, the recent arrival of X-Specs from the States (supplied in this country by Third Coast on 0257 472444) has made some serious inroads into the potential of 3D-representational displays. Not only do these flicker-shades come with a cracking-good 3D shoot-'em-up game and some impressive demo pictures, they are also compatible with several top graphics programs, most notably *DigiPaint 3, C-Light, Page Render 3D* and *Turbo Silver*.

Top games houses are rumoured to be considering crafting games around this 3D system, and American manufacturers Haitex claim the specs are already in professional use for serious 3D imaging purposes ranging from anatomy and architecture to space flight. Is this as far as 3D specs technology can go? Only time will tell... ■

THE 3D FUTURE

With advances in technology producing smaller and smaller video displays, the logical next step is to stop cheating the eyes into thinking you have two displays and instead to actually give each eye its own monitor. Such a pair of dual-monitor glasses could provide a very convincing stereoscopic image, and work is already in progress America to make a viable production version.

If this can be done, dual-monitor shades may be the first step towards the cyberspace dream as portrayed in the film *Tron*. Data structures within the computer could be displayed in an imitation of 3D space that only the wearer of the shades would be aware of. The user might navigate around the cyberspace using an advanced form of joystick – a large glove inside which laser beams would pick up movements of the hand.

The stuff of dreams, perhaps, but the technology is there and the application of it is being worked out even at this moment. The key words for the future are 'virtual reality'.

Until computer displays can bypass the human eye altogether, and send visual input directly into the brain, the most convincing prospect for a glimpse into a computer-created world remains a big pair of shades.

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• Digi-View at its best – a Dynamic Hi-Res image in all its glory.

SMASHING GRABS

The latest release of the Digi-View video digitiser takes Amiga screen grabbing to new heights of quality, finds Jason Holborn...

Amiga owners have got a great deal to thank NewTek for. Not only was it one of the first developers to jump on the Amiga bandwagon when the machine was first released way back in 1985, but it has stuck with the machine through years in which many others have left the machine in search of more profitable markets. Such devotion deserves acclaim, and NewTek certainly achieved it with their first ever Amiga product, the Digi-View video digitiser.

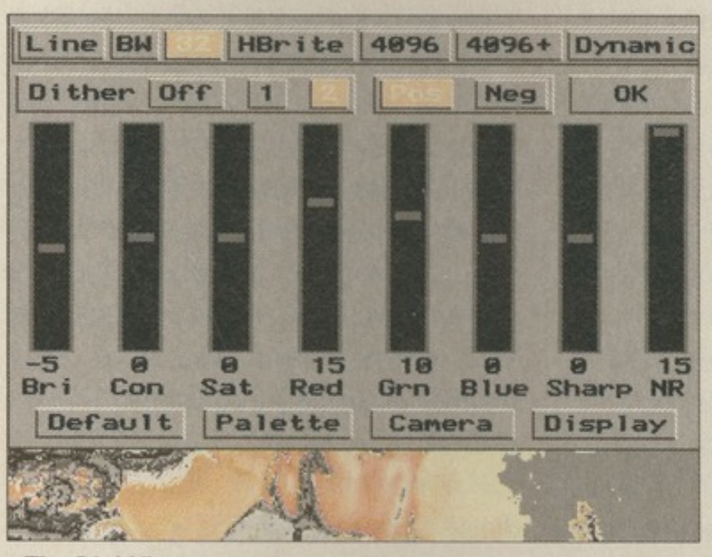
Although release 4 of Digi-View is new, Digi-View is almost as old as the Amiga itself. Indeed, many of the images grabbed using those early Digi-View units helped sell more Amigas than any advertising campaign Commodore ever came up with. Such is the popularity of NewTek's product, that the company itself claims that Digi-View is not only the top-selling Amiga peripheral of all time, but is also the best-selling digitiser of all time on any machine.

With a build up such as this, you're probably expecting the Digi-View hardware to be something pretty awesome. Where looks are concerned, this couldn't be further from the truth. The Digi-View unit consists of a small black box, not much bigger than the average cigarette packet, that plugs directly into the parallel port on an Amiga 500 or 2000 (1000 users will require a gender changer). Sticking out of unit is a single phono connector for feeding in a video signal. Apart from this single connector, that is all the Digi-View hardware is – there are no extra little knobs or sliders, just a single phono connector. How could such an innocent-looking gadget be such a competition killer? The secret's in the software.

SOFTLY DOES IT

Digi-View 4 is a software-based upgrade, therefore both new and existing users can benefit from its impressive capabilities. For £150, new users get both the Digi-View hardware and software, but existing users can upgrade to this latest release for just £25. Purchasers of the complete Digi-View system have the added advantage of a free copy of NewTek's excellent HAM paint system, *Digi-Paint*.

Digi-View 4's main claim to fame is NewTek's new 'Dynamic' display system. As well as the usual supported screen modes, this new system provides two new digitising methods – Dynamic HAM and most exiting of all, Dynamic Hi-Res.



• The Digi-View control menu allows you to choose the type of image to be grabbed.

Dynamic Hi-Res provides something that has never been seen before – 4,096 colours on screen at the same time in high resolution. This feat is achieved by using the Amiga's Copper co-processor chip to change the values contained within the Amiga hardware colour registers on every scan line. While only 16 colours can be displayed on a single line (which is the limit for high-resolution displays), the overall effect is breathtaking – easily the best images ever seen on an Amiga screen. If you don't believe me, just take a look at the picture accompanying this review and I'm sure your doubts will soon disappear!

Dynamic HAM is very similar to Dynamic Hi-Res, and allows the almost complete elimination of the problems usually associated with hold-and-modify displays.

Grabbing a Dynamic image is a slow process that can take up to 10 minutes before anything resembling the image you require is actually produced – but thanks to multi-tasking, you can carry on using your machine while Digi-View gets on with the complex task of assembling your image.

Unfortunately for 512K Amiga owners, all the extra goodies that Digi-View offers are unavailable unless you've got at least a megabyte of RAM – and at least 2Mb are needed if you wish to grab images in Dynamic Hi-Res mode.

DIGITAL DREAM

Recommended input to Digi-View takes the form of a monochrome composite video signal from a mono video camera such as those produced by Hitachi and Panasonic. Although a colour signal can be used, the results are far less impressive. If you're not the owner of a video camera, but wish to use Digi-View in conjunction with a video recorder, the video must be paused every time you wish to digitise an image. However, for best results a mono video camera is most definitely recommended.

As mentioned previously, Digi-View does not operate in real time. According to NewTek, the reason for not converting to real time is because Digi-View uses a more accurate successive-approximation type converter in conjunction with a low-noise sample-and-hold amplifier – anyone understand a word of that? Although this system is considerably slower than the four-bit flash converters used by most of the competition, it allows Digi-View to produce sharper images and provide increased control over the picture's attributes.

Because Digi-View is not a true colour digitiser such as Marcam's Frame Grabber and JCL's SuperPic, colour images are grabbed using the now-familiar system of colour filters. For a colour image to be digitised, Digi-View must scan the source image three times using red, green and blue filters (which are provided). Once all three 'separations' are grabbed, Digi-View then combines these into the resulting image.

CONCLUSION

If your Amiga is equipped with enough memory to handle the new screen modes, the results that are obtainable are quite simply astounding. Even in low resolution, the definition of grabs is top notch – in high resolution you will be amazed by the quality.

The only real problem with Digi-View 4 is the amount of hardware required to get the most from it. For starters, you will need at least 2Mb if you wish to use all screen modes. To actually start grabbing anything decent you will also need a mono video camera.

The combination of complete support for all Amiga screen modes, powerful support software and a free copy of *Digi-Paint* makes Digi-View 4 excellent value for money. Highly recommended. ■

TECH TIPS



Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Uncle Tech Tip, he'll see you right. Send your sorry stories to Uncle TT, 30 Monmouth Street, Bath BA1 2AP. There's a prize for the most pitiful tale

HELP! New Pet

I have picked up cheaply a Commodore Pet 2000 series, a Pet 3000, a 3022 tractor drive printer and a 3040 dual 5.25-inch disk drive, plus few cables. Now I know that you had a similar request last month, and you printed the address of the Commodore Users Club. I wrote off to them with my problem *(but what is your problem? – Uncle TT)* **and enclosing an SAE. In return I just received a leaflet explaining how to join the ICPUG (the same that I picked up at the 16-bit show) at a cost of 17 quid!**

Now rather than pay the £17, throw good money after bad, and not end up with any info on the Pet stuff I have, I wonder if you have any ideas where I can get or borrow any technical information or manuals detailing all the equipment I have purchased?

At the present moment nothing is working properly, although I can get a garbled screen display from one of the Pets. When I changed the fuse in the printer, smoke came from the rectifier! When I looked inside it, there was an Epson label on the printer.

The dual drives have a non-standard socket. I am interested in repairing them if it does not take up too much time or money. I would like to be a Commodore *user* before I join their group.
Keith Rider, Kingston, Surrey.

Perhaps one of the best – yet most overlooked – sources of information is your local library. Although nowadays they're feeling the pinch along with most essential social services, way back when the Pet was still a viable piece of silicon, libraries still had a moderate amount of funding and consequently, may have some books (probably written by the prolific Ian Sinclair in the *Getting the most from your new Pet...* style), but still a valuable source of information. Failing that, you could try grubbing about in the 'reduced' section at your nearest computer store. They generally have something by Ian Sinclair originally priced at £20 on sale for 99p or less.

The Techtippers are a generous lot and like to muck in and help wherever possible. Someone out there might have a couple of old Pet manuals they no longer need and will pass them to you care of me – fingers crossed?

It's unfortunate that you simply received a membership application from ICPUG, but you really can't expect them to spare time helping non-members. My advice would be to send them the £17 soonest. I have a copy of the ICPUG magazine in front of me as I write. Did I say magazine? Slightly condensed edition of *War and Peace* would be a more fitting description.

The magazine is positively stuffed with interesting reading, is well (and enthusiastically) written and thoughtfully put together. And joining the club gives you full access to their Pet software library which looks to me like an opportunity no Pet owner should miss. And just to whet your appetite, in the magazine's 'discount corner' they're advertising a copy of *The Manager* – a complete database solution for the Pet, including full printed documentation, for only £5!

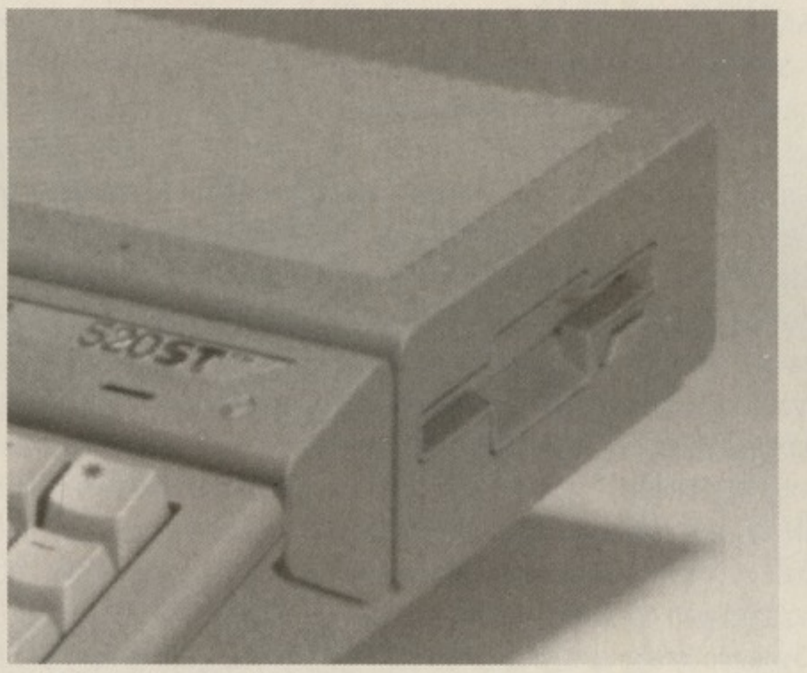
Forgotten the address for ICPUG? Contact Jack Cohen, 30 Brancaster Road, Newbury Park, Ilford, Essex.

HELP! Disk drive dilemma as the ST crashes

I am writing for advice on a problem that I have with my Atari 520STFM and 0.5Mb disk drive. I purchased an ST about a year and a half ago which worked fine for a couple of months, then went wrong. The only manifestation of this was that the game *Dungeon Master* would not work. I returned the machine to Dixons who replaced my machine with a brand new one (after ascertaining that the drive was not the problem).

A few months ago, just as the machine's guarantee had expired, the same fault reappeared. Again *Dungeon Master* would not work, but also *Populous* would not work and *Virus* was a bit dubious. It seems that the problem is bound up in the protection methods of these programs. The problem cannot be the drive itself, but could it be the controller?

A great deal of other software works fine on my machine. Can you tell me how I can find out the exact nature of the problem? How can I get it fixed cheaply? I am toying with the idea of upgrading so I do not want to spend a great deal of money fixing the problem.
A D C Smith, Wimbledon, London.



• ST disk drive: should have no problems.

I am reluctant to agree with you that the problem lies with the protection methods employed by some software houses. Although that can be a big source of 'compatibility' problems when different specification disk drives are used by Atari, the symptoms show themselves immediately and do not go away. If the drive cannot read the extra track or two required by the protection mechanism then this will be apparent at once.

So just what is the problem? Do you store disk close to some radiation source such as television, telephone or large and prized collection of magnets? If so, then the disks could be corrupted. Do you use the Atari mono monitor and you have you recently re-positioned it? The SM124/125 is a notorious source of radiation emissions and can quite seriously affect the operation of disk drives (I realise that you don't use the monitor with games, but you may have it switched on at the same time as a colour display). Ensure that the mono monitor is at least six inches away from the disk drive.

Is your ST in a position where it's likely to knocked? It may recently have suffered a bump which could have knocked the drive out of alignment. It would still work with non-extra track protected games but fail with *Dungeon Master* and the like. To determine whether this latter reason is the source of the problem, take your ST along to a service centre such as Silica Shop in the Tottenham Court Road.

If none of the above prove to be the fault, then maybe it *is* time to upgrade.

HELP! Press problems

I have been successfully using the *Stop Press* desktop publishing package on my CPC6128 with a DMP2000 printer, but have recently upgraded to a Panasonic KXP1124 printer. However when printing out on the Panasonic, I find that an A4 page is elongated to approximately a quarter more than the true length (the width remains correct). What is the cause and can you suggest a solution?
M G Miller, Sheffield.

Simple! You're using the wrong printer driver. In order that an application such as a DTP package can send the correct codes to your printer to get it to perform

text and graphics functions, an intermediate program (essentially a table) is needed which contains all the codes necessary for the actions you want to perform. Use the wrong printer driver and you get oddly-shaped printouts, strange characters and so on.

It's unlikely that you have access to a driver that directly supports the Panasonic, so ycu should choose a printer driver that will work with an Epson 24-pin device. This should result in a true representation of what you have created using the program.

TIP Emerald Isle

Congratulations on such a fantastic column, which I am sure many many people appreciate! I am writing to inform you of our computer repair service which we offer, and should you have any enquiries from Ireland about repairs, we would be only too glad to help.

We specialise in Commodore and Atari repairs but will carry repairs to all other makes of computer.

We can also supply spares, leads and all the other little bits and bobs that make up everyday computing. By the way, your humour is an asset to such as serious subject.

Gerard Manamara, HamSoft Communications, Santa Lucia, Ballykeeluan, Parteen, Co Clare, Ireland. Telephone 061 348212.

Thanks for the compliments, and I hope our Irish readers make use of your services. *(So flattery is the way to a free plug, eh Unc? – Ed)*

HELP! ST DTP

Which Atari ST do you think I should buy to carry out some desktop publishing? I currently own an Atari 8-bit and want to stay with Atari products, so don't tell me to buy a Commodore Amiga or an Acorn Archimedes.

Can you also tell me which desktop publishing package I should buy out of *Timeworks* and *Calamus?* I want to create some quite complex fanzines and brochures so if you advise on *Calamus* I don't mind paying the extra if it is what I really need.

Do I need a hard disk drive, two floppy drives or will the built-in disk drive be enough? Do I need to have a laser printer and what do you think of the Atari laser printer?

Finally, can you recommend a good ST-specific desktop publishing book that doesn't assume any knowledge on the part of the reader?

Giles Morgan, Sliden, County Durham.

I wouldn't dream of telling you not to buy an Atari machine. The latest version of the ST, the STE, is a powerful and fast tool ideal for desktop publishing at home. Obviously, the more memory your ST has the larger the documents you can create using a DTP program. It follows then, that you should buy the 1040STE if you can afford it. Don't worry if you're limited to the 520 however, it's possible to upgrade the memory of the machine to a full 1Mb at a later stage.

Which software package? It sounds as though you intend to create some fairly expansive publications, and although *Timeworks* is exceptionally popular, easy to use and has many features, *Calamus* is the definitive desktop publishing solution for the ST at the moment. The program has some unique – for ST DTP packages – features such as text rotation, drawing tools and many more. Unfortunately, *Calamus* only runs on STs with at least a megabyte of RAM, so if you're limited to a 520STE, you'll have to buy *Timeworks.*

You don't need a hard drive, but it helps. With hard drive, all your programs will load and run faster and perform better and you won't have to constantly swap floppy disks in order to access the files you want. A hard drive will also enable you to make use of large thesaurus and dictionary utilities which don't work very well from floppies. If you can't afford a hard drive, then you really must have two floppies. DTP on a single drive system will be at best difficult, at worst impossible.

You definitely don't need a laser printer to produce stunning publications. Some of the better 9-pin Epson-compatible dot matrix machines are capable of quite stunning results. Have a look at the Star LC10 (colour option available) or the Panasonic KXP1081. Both printers can be had for under £150 – £130 if you shop around (grub about in Shopping Express for bargains) and both are among the top selling machines in the UK.

A good introductory ST-specific DTP book? There isn't one! However, HiSoft currently market a dinky little introductory desktop publishing text called *DTP At A Glance...* by Rob Pickering, which is fun to read and very informative, and the price has just been dropped to around £7. Contact HiSoft on 0525 713716 for a copy.

HELP! PC book

Here's an easy one for you. Is there an Amstrad PC1512/PC1640 handbook available? I'm sick to death of the rag that accompanied my 1512. Every time I need a particular piece of information, the damn thing lets me down!

Roger Joy, Southfields, London.

Probably the best replacement manual for the Amstrad PC is *The Amstrad PC1512/1640 Owner's Handbook* by Stephen Morris, published by Heinemann (ISBN 0 434 91376 6) and priced at £19.95. There are chapters detailing GEM, the operating system, desktop menus, disks and files, hard drives and so on, it's fun to read and very informative.

HELP! Love flourishes!

Don't laugh, I am a lady driver with an Amstrad PC1512 single drive with a hard disk fitted. I would like to run *Protext* 4 on it or in it. Q: Will I have any problems? I seem to remember someone at *Express* saying that for optimum results *Protext* 4 needed a double drive and 640K, or it may have been double K and 640 drives. Please help me – I'm *very* good looking.

Ms M Green, Withington, Manchester.

Chivalrous and gallant Uncle TT to the rescue... *Protext* does work better with two disk drives than one, but works best with a floppy and hard drive combination. As this latter configuration is yours, you will have no problems.

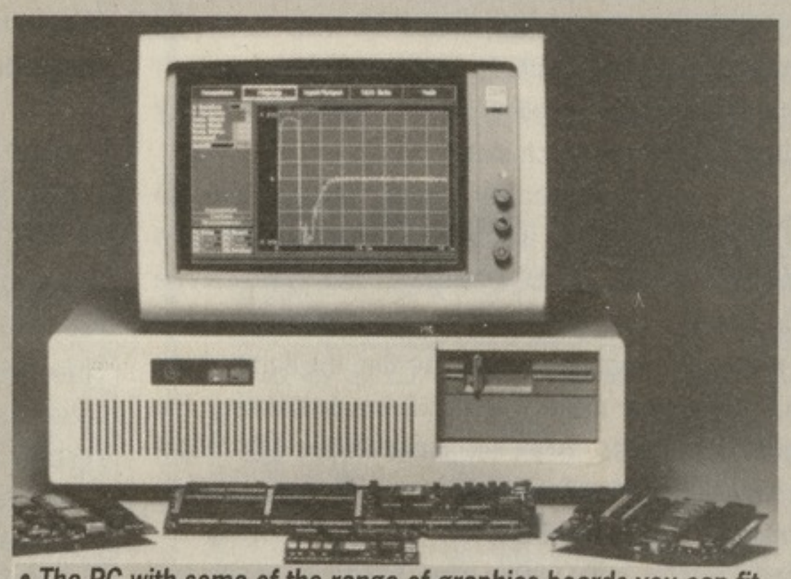
An extra 128K of RAM would enable you to create monster documents, definitive first novels and the like, but 512K is fine for everything else. Buy and enjoy *Protext* (Oh, and next time, include a recent photograph with your request for help...) ■

HELP! I've bought a cheap PC, but I want to play games

I recently bought, second-hand because I am a student and cannot afford to splash out, a computer system comprising a DTK Corporation XT computer, a Casper GM-1288 amber monitor and Suntouch K2 keyboard. The computer also includes a 20Mb hard drive and a turbo 640 main board. I have been told that the makes are based in the USA, but I would like to know if there is a branch in England and if so, where? Any help or technical information on the computer and background of the company would be greatly appreciated.

I would also be very happy if you would explain to me what 'HARD DISC 1: ST255' and 'ST10 v2.4' mean as I have only a few months' computing experience.

Is it at all possible to get a switch between two graphics cards? As I would like to buy a CGA card and television adapter to use games and keep my Hercules card and amber monitor for word processing. Is this possible? If so, where do I buy the equipment?



• The PC with some of the range of graphics boards you can fit.

One final thing, how do I get turbo mode on the main board? And as I have little technical experience could you please explain it simply?

Daren Wheeler, Chesham, Bucks.

Anyone know if there's a branch of DTK Corporation in the UK? If so, phone me. There really isn't much to tell you about the machine that you would find very interesting. Basically you've acquired some bog-standard XT clone that will give you access to most of the available PC software.

ST255 is a code detailing the type of hard drive in your system. In this instance Seagate (ST) and 20Mb (255), simple, right? The PC world is full of obscure little codes and commands like this. Long time owners will tell you it is because the machine is powerful. Don't believe them! The PC is a hideously out-dated command line-driven hunk of junk silicon that has long since had its day. Unfortunately, due to corporate bulk 'name' buying, it is still enjoying a healthy life.

What this means for you is a huge software base, huge information base, plenty of spares and dealers to sell them, so enjoy your new toy.

Forget this nonsense about adapter card switches, you can have both the CGA card and the Hercules card and drive the same amber monitor from them – you don't need a television. All your games will be displayed in amber but if you can live with this you'll save cash.

Turbo mode means that instead of running the XT's central processor chip at 4.77MHz (the standard speed) it's pushed along at 8 or 10MHz. In order to retain compatibility with very early PC software requiring the machine to be operating at the standard speed, many manufacturers provide a switch so that you can select between the two as and when you wish. However, this is not always the case, so unless your machine has an easily-identifiable marked 'turbo-mode' switch on the front, it probably isn't switchable. If the latter holds true, don't worry, 99 per cent of software will run.



EXPRESS MAiL

Britain's liveliest computing forum – packed with comment, controversy and conflict. Write and tell us what you think! Reach us at: *Express Mail, 30 Monmouth St., Bath BA1 2AP*
Sorry, no personal replies, even with an sae.
This week's replies written by Martyn Lester.

Contact cons

I purchase your magazine regularly and feel it is a good way of keeping up with developing technology.

However, there is an issue that is of very great concern to me. OK, piracy is here and neither you nor I are going to get rid of it (just like computers, viruses and logic bombs are here to stay), but you may be able to cut it down in your own little way. At every opportunity you slam pirates, hackers and crackers, which probably scares various people into not doing it, although others might think: 'Where do I get some of this free software?' or: 'How can I get into hacking so I can live on the edge of the law and have a large boost to my ego whenever I find a password?'

Now, this would be all fine except for the fact that *Express* has a nice little free ads section. Looking through this, as I do when I buy your mag, what do I find but:

- 1 C64 contact wanted
- 10 Atari ST contacts wanted
- 32 Amiga contacts wanted.

OK, before everyone jumps up on to their soapboxes, I realise that some of these people want to swap shareware, hints, clip-art pics etc, but the majority – well, I'll let you guess what they want.

One of the ads was cheeky enough to say: 'Wanted contacts etc, Hi to all at *Express*,' another wanted a C64 emulator and contacts – I realise that he may want someone to sell him a cheap one. Another person asked for any beginner to contact him, – then I'm sure it wasn't to say 'well done in buying your machine'. Other people greet the groups that are hacking the games, but I'm sure they just wanted to say hello.

Another thing, before I forget – there is nothing wrong with user groups, they are of great benefit to one and all, but look in your user group section of the reader ads and what do you find? Contacts.

So next time you slag off pirates, hackers or crackers, just cast an eye over your own free ads (and they are free so you don't lose out if you pull them out).

I realise that other magazines have classified ad sections, but they don't come out weekly and they don't take such a hard line on pirates.

You don't have to print my letter but at least I've had the opportunity to state an obvious point that you seem to have overlooked. I have tried to show an objective opinion and I apologise if this hasn't shone through.
Anon

I have to admit that reading through the free ads has not come very high on the priorities list for my first three months at *Express*, but I take your point.

A clean-up of the blatant offenders is imminent, and if readers persist in abusing the free ads to run piracy networks, we may reluctantly have to consider restricting the service to buyers and sellers, which would be a great shame for everyone.

PD L s d

The subject of public domain software and the profits the owners of PD libraries are reputed to make is a popular one at the moment (*Express* passim, to coin a phrase), but I think a serious point is being missed.

There are, of course, two great advantages to PD software when compared with commercial titles. The first is that a vast range of high quality software is available at a price that is cheap – £2-£3 for a program that would normally cost in the range of £10-£15.

Secondly, much of what is in the public domain isn't available commercially at all – so the software is really worth much more.

Personally I don't mind if the PD librarians do make a few pence on each disk (which, let's face it, is all they can be making) – I'm more concerned about the programmer. Is it fair that the library owners make a profit from distributing the disks, when the programmer, who might have spent hours creating the software, gets nothing?

So, let's stop worrying about our pockets – and perhaps the more dishonest PD owners will think of the programmers as well as themselves. Let's keep PD the way it was invented.
Simon Daniels, Long Buckby, Northampton

PD has reached a strange old state, hasn't it? The original idea was that absolutely no-one made any profit out of the excercise, but the reality is that some suppliers make anything from pin-money to a modest living at it, while the people who donated programs to the public domain still never see a penny.

I understand that a new idea of 'licenceware' is emerging whereby libraries pay a modest fee to the author in return for a fixed-term license to distribute the software.

Doubtless there will be some bright reader who can spread a little further light on this particular innovation. Are there any takers?

Science faction

Several recent events have lead me to wonder what we might expect to see wandering the streets and using our public transport in the near future.

All these events have had to do with the increasing appearance of what I have dubbed 'cybernetic add-on devices.' I am speaking, of course, about such things as personal (pocket) computers, personal hi-fis, personal brain-wave modernisers, personal (computerised) organisers, personal (portable) telephones, etc. Also the ingenious device featured recently on *Tomorrow's World* – basically a personal computer display one wears like headphones – is in this category. Which leads me to envisage scenes of work-weary commuters sitting on their trains – fast to Sevenoaks – plugged in to their own little personal worlds.

The commuter will have his lap-top on his lap, driving its own personal VDU, which is attached to his headphone band and is hovering comfortably in front of his left eye. His headphones are attached to his personal hi-fi and are feeding his brain with the latest stock market figures and the Heng Seng index.

Over his right eye hangs the computerised brainwave modifier's display, which is relaxing him so that he can cope with the journey to Sevenoaks.➤

Cause and effect

If people living near power lines experience an increased incidence of cancer then one would assume that generating station engineers, with their much greater exposure, would be dropping like flies.

But scientists, like media editors, are only human and some are more human than others. Preying on health fears is the surest way to gain publicity and ensure continued funding.

This nonsense should be filed in the same receptacle as the recent pronouncement by the Sun's medical guru that 100,000 British babies per year will die from drinking microwaved milk.

To paraphrase Mark Twain – there are fools, damn fools and experts.
H Griffiths, Hereford

Occupational studies from around the world have tended to indicate increased incidences of various cancers among workers in electrical-related industries, one suggesting brain tumours are 13 times as prevalent among electrical utility workers in the US.

Presumably your assumption that generating station engineers are not at risk relies on the pooh-poohing of the people who have been telling us for years that supposed links between nuclear power stations and leukaemia are rubbish.

To be fair to you, on the day you posted your letter, Sellafield was still officially as safe as houses – it was only a couple of days later that they finally owned up that workers at the plant had a significantly increased chance of fathering children with leukaemia.

But then the nuclear side of the industry is no longer going to be privatised. Any question of the safety of electromagnetic fields in general will clearly not be greeted warmly by the CEGB or the Department of Energy while shares in the rest of power generation have still to be flogged off.

I know I will not be able to persuade you that sometimes journalists and research scientists actually believe what they say.

Frankly, however, I think you would be nearer the truth if you divided society into fools, damn fools and people who believe what politicians tell them to.

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Of course, the brainwave modifier is in direct communication with his digital wristwatch. The wristwatch constantly relays the commuter's pulse rate to the modifier which has the power to cut into the Heng Seng Index at any time and further relax the commuter with sounds of 'Meet your inner mate' at critical stress moments.

The lap top is radio-linked to the portable phone, which has a built-in modem. Before alighting from the train and making the critical decision about whether to drive the 200 yards home with the computer display in his left eye or the MC2 in his right, or indeed whether to bother removing either before driving, the cyber-commuter will fax the work done on the train directly to his office.

He will then make a mental note in his computer organiser about playing golf tomorrow, since all tomorrow's work is now done; he needs a day at home – in the golf simulator – to relax from it all.

I have called these devices 'cybernetic add-ons,' although I begin to wonder when we will see 'cybernetic add-ins.' At birth we could have our left eye removed and replaced with a multi-use display. We could have tiny speakers implanted in our ears to relay information to us from any number of sources; a world-wide speaking computer which would answer any question we telepathed it, perhaps. (We all know the Soviets have worked on a project which aimed to control machinery or computers by thought.)

Radio receivers and telephones could be built into our breast-bones, also relaying to our speaker implants. Perhaps most worrying of all, especially if you are, as I am, a reader of Larry Niven, would be the fitting of a small electronic socket, hidden by the hair, through the skull, into the pleasure centres or relaxation centres of the brain, into which we plug our Dream Machine, mark II. Everything would be powered by a small power plant implanted in our hip bones.

As a scholar of the history and development of science fiction I was, until recently, of the opinion that the technology the sci-fi authors write about was never to appear and that if some of it did, it would only happen in the distant, distant future. For example: organic computers; pictures of Neptune taken from a range of 3,000 miles; genetic manipulation; cloning; detecting neutrinos; optical computers and fibre optics; minimally invasive surgery; optical character recognition; speaking computers; and AIDS.

However, sci-fi is already here. A large proportion of my sci-fi library is already behind the times; it is interesting to note that during the 1940s the state-of-the-art technology was at the same state as the technology in sci-fi stories written in the early 1900s. At the beginning of the Eighties our technology was as advanced as the technology written into sci-fi in the Forties and Fifties. Now sci-fi authors are hard-pushed to write about something that has not already happened.

Mr K Simpson, Brockley, London

All rather mind-boggling for those of us who are still struggling to come to grips with the idea of credit-card-sized pocket calculators.

Personally, I'm praying for a computer that is bright enough to do my job for me and a management dim enough to carry on paying my salary regardless.

■ Doctors orders

I was disappointed to see in your second review of PCs that you have once again put the Euro PC equal last as regards value for money and almost bottom for desirability. One cannot argue with the objective power rating but I would question your verdict on the other two.

A PC, for most of us, is a tool not a toy. A tool is bought to do a job, which, for most of us home PC users, consists of: word processing; using a spreadsheet and management of accounts; and perhaps investments. A tool which carries out these functions efficiently, reliably➤

■ Partly politics: letters from readers who ask questions and know a few answers, too

I noticed, a few issues back, someone begging for an Atari 2600 column. My French penfriend had one when I went over a couple of years ago, and to demonstrate the power of the control of this under-rated machine, I can honestly say I played several games with the joystick upside down before realising.

Also I take issue with your QL correspondent, John Torofex, for making out that the Sinclair machine is on a par with Acorn's Archimedes. An Amiga can emulate the QL, too. Incidentally, a quantum leap is the smallest possible quantity of anything, so the machine did represent a 'quantum leap,' contrary to what you said in your Amiga PD section.

What has happened to the Humour section of the classified ads? It still appears as a category on the form, but there hasn't been one since about October. Have you just bundled these ads in with the rest on the grounds that no-one reads them anyway, or is the culprit your readers' sense of humour?

As for your Top 60 Games section in *Express* 62 – for the BBC you reprinted word for word what you put in *Express* 51, disregarding the comments made by both myself and Rafael Jay in *Express* 53. Could you, please, alter your text and correct and/or add to what is written, so eventually something reflecting the truth will be printed?

Finally, I was glad to see you stuck your neck out in *Express* 67 about the Tory government. You may have alienated 37 per cent of the country (latest opinion poll at time of writing) but, as your comments were all reasonable and justifiable, I don't think there will be too many complaints. Anyway, they will probably be from businessmen who use PCs, so any boycott will be no loss.

Jeremy Benson, Bedford

Taking the question of humour first: you have put your finger on it when wondering about the quality of contributions to the section.

Once we had knocked out the Amiga owners' jokes about using STs as door-stops, and the Atari types' jokes about how many Amiga owners it takes to change a light bulb, we were left with some real rib-ticklers about chickens crossing roads, so the section is effectively suspended pending worthwhile contributions.

Your point about the games section is noted, and is probably partly explained by a change in editorship over the period. Several of our Shopping Express guides are due for an overhaul in the near future.

On the political front, I should first make it clear that I would in fact regard the departure of business readers as a loss. The sheer variety of *Express* readers may make pleasing everyone an impossible task, but it certainly makes the job more interesting.

The magazine is clearly (I hope) apolitical in its news and features, and I think very little of the readership will feel 'alienated' by a personal, single-subject statement made in response to a letter.

Reasonable people will happily disagree with my opinion without feeling the need to cancel their order at the newsagent. Anyone who swears never to buy *Express* again because its editor has dared to criticize a Government minister must be narrow-minded indeed. On the other hand...

Your reply in *Express* 67 should alienate all your readers not just half. Not because it was political but because it was daft. Your unsubstantiated jibes about industrialists and party donations told us more about you than the problem.

The Government has not blamed the unemployed. It has blamed unemployment on an uncompetitive economy.

Opportunities to obtain work experience – a different problem – started to diminish as the employment costs – mainly wages – for trainees approached that for trained workers.

Training is not an end in itself. It is not investment that has been lacking but profitable investment that has been lacking. No one invests for fun. If we can compete in design, productivity, reliability, delivery and make a profit there will be investment, jobs and prosperity for all. Eastern Europe tried it the other way. The results are high profile at the moment.

These simple tenets must apply at Future Publishing as much as any place else. Good Luck! Your current frame of mind suggests your company will need it. Pity about the mag ...

Ian Hamilton, Dalbeattie, Kirkcudbrightshire

On the other hand...

I nearly nodded my head off in agreement with the letter from Mrs B Smith and your reply.

By coincidence I had just received a letter from a company telling me that my job application was unsuccessful and that 300 people had applied (about average for this area).

I am much older (50) than Mrs Smith's son, but I have encountered much the same problems in getting work in the computer field – in spite of intensive training over three years.

Far too many employers, as Mrs Smith says, demand work experience before qualifications or insist on a knowledge of one WP/computer system only; others use YTS/ET trainees as 'gofers' or cheap labour. (The manager of one printing firm suggested I work for him for nothing "until the business picks up" – he said this without blushing while showing me a machine for which he had just paid £17,000.)

Then, of course, for the older person there is the: 'You're finished at 40' syndrome (including, presumably, the heads of the companies referred to as Amstrad, IBM, ICI, Nissan, Shell etc.).

Even funnier than the Government's claims that: 'Unemployment has gone down for the 99th successive month' (ie, 'We keep finding new ways of juggling the figures') is the ludicrous idea that the Enterprise Allowance Scheme can help the unemployed by 'employing themselves.' The Government never explains how, if the big boys cannot afford to create extra jobs in depressed areas, the individual can.

By the way, I've tried the 'on your bike' idea as well. I moved to London just after the start of the recession in 1980 but returned no better off after three years – that's not the answer either. As you say, investment and a totally new attitude from those in power are the only long-term solutions.

Neil Foster, Prescot, Merseyside

Thank goodness I've finally set off a rather more adult debate than the one about whose machine is best. I'm not at all surprised at receiving a letter from a Thatcher fan who thinks that I'm daft; I am surprised that not even one rabid Tory has written in to contradict that issue's Comment on South Africa.

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and at the lowest price in your survey should, surely, be at the top of your list for value for money, not the bottom.

As regards desirability, the Euro PC, with its first class Amber monitor (much better than some of its higher priced competitors); its 9.54MHz clock speed; its 3.5-inch disk; its separate PSU; its clock calendar; its bundled integrated software and BASIC; its better quality keyboard; and last, but not least, a one year on-site warranty, surely deserves a higher rating than your review gave it.

I suspect your reviewer was put off by there being only one expansion port, but in my first six months' use I have found no need to use even that.
Dr J M Crossley, Sutton Coldfield, West Midlands

The problem with evaluating any computer, of course, is that one cannot tell the requirements of any given prospective buyer. What will be a hopelessly inadequate machine for some users will be just the ticket for others. A computer that one reader regards as perfect will be seen by another as ridiculously overpowered and therefore overpriced.

The series of features we have been running over the last two months on understanding PCs and their technical specifications has been specifically designed to make all PC literature, including our own Shopping Express guide, more readily comprehensible to readers, so that they can better evaluate their own requirements and rely less on reviewers' opinions and advertisers' colourful claims.

Over the next few months we will be looking hard at ways of improving our guide to make it even more useful to prospective PC buyers.

Meanwhile, I am glad to hear that you are pleased with your Schneider machine. At the end of the day, it is whether you are happy with your own machine that matters, and you should not let anyone else's opinions worry you even in the slightest.

Appliance of Psions?

I have recently purchased a Psion Organiser and, after entering my schedule, diary, names and addresses etc I was greeted with the message: 'Something wonderful has happened. Your Psion Organiser is alive.'

On checking my data I noticed that it was all corrupted. Is this normal?
D Head, Gwynedd, North Wales

No, this is not normal. Neither, I suspect, are you. I don't suppose your first name is Dick, by any chance?

Supply and demand

I note your reply to Anon's letter of February 17, but must strongly disagree that reducing the price of games does not sell more.

Recently Electronic Arts 'sold off' a number of games, among them *Starfleet 1* and *Empire* at £9.99 each. I was unable to obtain these, either by mail order or through my local shop, as the games had sold out as soon as they had been received by the dealers.

I was lucky enough to obtain what must have been the last *Starfleet 1* in captivity from EA itself – thanks to EA for being so helpful by the way – but I have so far failed to find *Empire* anywhere.

Neither title was selling at all at £29.99, but at £9.99 they were gone before the advertisements appeared.

Further, with regard to your comments about the price of CDs, there is some controversy over this as well but, as many are of classical music and Beethoven is still being listened to long after his death, I do not think that they are in quite the same category.

How can you compare £10.99 for a work performed by perhaps 100 people (requiring rehearsals, considerable artistic and technical skills, a conductor, special premises, recording engineers etc) with £25 for an ordinary shoot-'em-up?
Richard Daley, Poole, Dorset

I think you may have missed my point, or rather two of my points. What I said – but apparently not clearly enough – was that the author of the letter sounded to me like an incorrigible pirate who was only using price as an excuse, and who would continue to be one even if prices dropped.

I am all in favour of the concept of value for money, and I have suggested in previous letter replies that those companies which experiment with lower price bands should be encouraged. However, setting increased sales against trimmed margins requires more marketing acumen and sheer mathematics than some readers think. Let us hope that there are plenty of software house accountants beavering away on the problem.

On your second point, I was making no comment at all about the price of CDs as such. I was simply commenting that one never heard of people buying CD players and then later moaning that they couldn't afford the software, which seems remarkably common among computer owners.

A raspberry roundup

As promised, here is a curtain call for raspberry-blowing contributors in the 'my machine is much, much, much better than yours – so there' debate.

This letter has, needless to say, been ruthlessly edited to bring it to length.

"...Many of these readers own a computer they called an Amiga (maybe it should be called an Amoeba as this bears a close resemblance to the brains of Amiga owners, ie, single-celled), and in general don't seem to like the ST too much ...

"The Amiga is a games machine. Thus it has the qualities required of a good games machine – sound and graphics. But the STE is designed to be more than a games machine. Thus it has the qualities of a machine designed for more than games.

"What all the writers of these letters fail to see is the true purpose of a computer. To my mind a computer is designed to perform a number of tasks equally well – whether games or business applications software – and not for a purpose more suited to a console.

"An Amiga owner can load up a game and be stunned by the glorious graphics. He or she can then turn off the computer and erm... erm... load up another game and play that for another half an hour. After a few hours they will have run out of software.

"Meanwhile, the ST owner can also load up a game and then have a wide choice of word processors available to write into *Express* with and cause an argument. Then maybe do some MIDI sequencing with the glorious range of packages on the market to run in lovely crisp mono."
Howling Mad Mike, Leicester.

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